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DERANGEMENT OF THE SEMILUNAR CARTILAGE

OBSERVATIONS IN SEVENTY-SIX OPERATIVE
CASES*

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In this paper we shall endeavor to correlate the preoperative findings, surgical pathology, and postoperative results in a series of cases of derangement of the semilunar cartilage of the knee joint. Of this series we have ascertained the end-results in fifty, and in recording seven unsatisfactory results we shall, by way of explanation, call attention to possible sources of error in diagnosis and operative technic.

In 1803, as it was in the days before Lister, Hey¹ justifiably recommended conservative treatment. Since the beginning of aseptic technic, however, that is, since about 1840, there has been an increasing tendency toward operative procedure. In 1906, Barker,² while recommending operative treatment, advised the conservative procedure of suturing the loosened or fractured cartilage in place when such a method was mechanically feasible. About the same time, Cotterill³ and Allingham⁴ report series of operative cases in which both suturing and excision were employed, and definitely express themselves as favoring the latter technic. Some writers have recommended partial excision in all operative cases;⁵ but the present tendency is toward as complete excision as possible.⁶

While series of cases are reported in the British literature, Henderson⁷ is the only American who has published any detailed end-results. He reports eighty-seven cases of knee joint derangement, of which sixty-one involved the semilunar cartilage. Our series of seventy-six cases extends over a period of seventeen

years; the most recent operation was performed over a year ago. The operations in our group were performed by five different surgeons; fifty-one of the last sixty-seven operations were performed by one individual.

SEX AND AGE

Sixty-one per cent. of the patients in this series were males. Practically all of the cases were traumatic in origin, many of the derangements being sustained while the patients were taking part in athletics. Owing to this fact, and in view of the more hazardous occupation of men, this distribution is to be expected. Power⁸ reports the percentage to be 80, while Walton⁹ reports it as 89. The last figure is to be explained by the fact that Walton's observations were made in a British coal-producing region; in fact, the condition has been styled "miners' disease."¹⁰

The average age at operation was 29 years, and varied from 10 to 61. The distribution shows that the frequency of occurrence at various ages corresponds closely to the activity and probable exposure to injury at those ages. From the sixteenth to the twentieth year the individual is very active; but as he has not attained full strength, the preponderance of cases at this age may be doubtless accounted for.

SYMPTOMS AND SIGNS

The duration of symptoms before operation varies from less than three months in the majority of cases, to more than seven years in four. The less perfect postoperative results, not explicable on pathologic grounds, are among those whose symptoms were of long duration. Any long-standing derangement of the knee joint leads to arthritic or periartritic changes, which one should not hope entirely to overcome by removal of the cartilage; the process may be arrested, however, and some functional improvement may be expected to result. Allison¹¹ argues prompt operative treatment on this basis.

Local pain or tenderness over the site of the involved cartilage was present in forty-eight cases, or 63 per cent. This undoubtedly is the most characteristic diagnostic symptom, and has been referred to as being as constant as tenderness over McBurney's point in appendicitis.¹² That this characteristic was not more frequently mentioned is undoubtedly due to imperfections in the records and to the fact that emphasis has been placed on it only in recent years.

* From the Orthopedic Clinic of the Carney Hospital.

¹ Read before the Boston Orthopedic Club, Jan. 17, 1921.

1. Hey, William: On Internal Derangement of the Knee Joint, *Practical Observations in Surgery*, London 1: 327, 1803.

2. Barker, A. E. J.: Seventeen Cases Operated on for So-Called "Internal Derangement of the Knee Joint," *Lancet* 1:7 (Jan. 4) 1902.

3. Cotterill, J. M.: Notes of Fifteen Cases of Operation for Internal Derangement of the Knee Joint, *Lancet* 1:510 (Feb. 22) 1902.

4. Allingham, H. W.: Some Remarks upon "Internal Derangement" of the Knee Joint, *Lancet* 1:731 (March 15) 1902.

5. Henderson, M. S.: Mechanical Derangements of the Knee Joint, *J. A. M. A.* 68: 321 (Feb. 3) 1917.

6. Martin, A. M.: Injuries to the Semilunar Cartilages: A Personal Experience of Four Hundred and Forty-Nine Cases of Operation, *Proc. Roy. Soc. Med., Surg. Sec.* 4: 23-24, 1912-1913. Allingham, H. W. (Footnote 4).

7. Henderson, M. S.: Injuries of the Semilunar Cartilages of the Knee Joint, *Ann. Surg.* 71: 658 (May) 1920.

8. Power, D'Arcy: The Results of the Surgical Treatment of Displaced Semilunar Cartilages of the Knee, *Brit. Med. J.* 1: 61 (Jan. 4) 1911.

9. Walton, A. J.: Injury of the Semilunar Cartilages, *Proc. Roy. Soc. Med., Surg. Sect.* 4: 1-22, 1912-1913.

10. Robson, A. W. M.: Observations on a Series of Cases of Fractures of the Semilunar Cartilage of the Knee, Together with Other Cases of Operation for Loose Cartilage, *Brit. M. J.* 1: 877 (April 12) 1902.

11. Allison, N.: Operative Treatment of Knee Derangements, *Am. J. Orthop. Surg.* 9: 475 (Feb.) 1912.

12. Morison, R.: Injury to the Semilunar Cartilages of the Knee, *Lancet* 1: 604 (Feb. 27) 1909.

Locking was present in thirty-nine cases, or 51 per cent. This small percentage is contrary to the general conception as to the relative frequency, but agrees with the observations of Jones,¹³ who finds it present in less than 50 per cent. In addition, however, fifteen patients mentioned a sense of derangement in the joint variously described as a "dislocation," "something slipping," etc. This, we believe, is due to the displacement of the loose cartilage, which probably becomes jammed between the articular surfaces of the tibia and femur, and immediately slips back again to the normal position. In such cases the injury is often slight and is not followed by much effusion.

It is stated twenty-one times that the cartilage is palpable. Since the actual cartilage is palpable only when a loose anterior end is pushed forward or the cartilage itself is much swollen, the positive findings in such a large percentage of the cases may be due to the fact that a thickened movable capsule to which the chronically inflamed cartilage is attached is considered to be really the cartilage and cannot readily be distinguished from an actually palpable cartilage.

In the physical examination, swelling is mentioned only twenty-eight times, or 37 per cent. While effusion is a constant sign in recently deranged conditions, it is less marked with each recurrence; and as operations are generally performed after the acute symptoms have disappeared, it is seldom found on a preoperative examination. The long-standing cases usually show capsular or periarticular thickening, and it is in these cases that it is often stated that the cartilage is palpable.

In seven cases, or 11 per cent., definite mention is made of a "click" which has the same mechanical origin as the sense of derangement, but is more violent, and at times is actually audible to a person standing near. Weakness is mentioned specifically in only five cases. Limited knee motion and stiffness were present in only a small percentage of cases. Preoperative roentgenograms were invariably negative. Preliminary oxygen injection has never been used as recommended by Painter,¹⁴ who has found the procedure to be of value in diagnosis.

Sixty of our cases involved only the internal cartilage, thirty being in the left knee, twenty-six in the right, and four not mentioned. Thirteen involved only the external cartilage, eight of which were left, four right and one not mentioned. There was only one case of combined involvement of the external and internal cartilage, which occurred in the right knee, and the record states that the two cartilages were removed by the same incision. One other patient was operated on first for internal involvement in the right knee, and later had a recurrence in the other knee, from which the external cartilage was excised with relief from symptoms. This shows the internal cartilage deranged almost five times as frequently as the external. Jones¹³ finds the proportion 7:1, while Henderson,⁵ writing in 1917, reported that he had never found it necessary to remove the external cartilage. We have been able to ascertain the end-results in eight cases of external cartilage involvement; and since seven have had no recurrence of symptoms whatever, it is only reasonable to conclude that this cartilage is a source of trouble, and may sometimes possibly be overlooked.

SURGICAL PATHOLOGY

Owing to the brevity of some of the operative notes, the surgical pathology is not as complete as might be desired. There are reported fourteen cases of "hypermobile cartilages," five of which were found to be detached anteriorly, four posteriorly, four at the middle or rather laterally, and one attached only posteriorly. Eight cases are described as fractured, and eight dislocated, three of the latter of the "bucket handle" type of Morison.¹⁵ In addition, four were found thickened, two calcified, two atrophic, and in one, no pathologic condition was made out. The cartilage in the last instance was left intact and not removed, as recommended by Parker¹⁵ under similar conditions. Abnormal appearing fat tabs and fringes were also excised in eleven of the cases. Six were combined with free bodies in the joint which were also removed at the time of the operation. Twelve cases showed signs of injection or inflammation, probably traumatic in origin, as only one of them did not show a good operative result.

In view of the foregoing facts we cannot agree with Morison that fracture is always present in hypermobile cartilages. It is our belief that a hypermobile cartilage can be a definite entity, although it is probable that some of the hypermobile and dislocated cartilages had unobserved marginal fractures. Nor do our investigations indicate that the "bucket handle" type is the most common lesion, as has been stated.⁷ It is interesting to note that only once in the last six years has the operator recorded the removal of fat pads.

Complete excision was performed in sixty-six cases, or perhaps it would be more accurate to state as complete excision as possible, for a complete excision through the usual lateral incision cannot be done. Partial excision, stated as such, was reported in seven. As complete excision tends to eradicate all potential source of trouble, at least from the cartilage, it is difficult to justify partial excision. Temporary drainage was noted in one very early case in which the operation was performed more than fifteen years ago. In all cases the lateral incision described by Jones¹³ was employed. In no case did joint sepsis result. It would appear, therefore, that formaldehyd-glycerin or other preoperative chemical injections are unwarranted. Local anesthesia, as advocated by McWhorter,¹⁶ has not been used.

POSTOPERATIVE RESULT

In reporting end-results we have considered as of primary importance: (1) satisfaction of the patient; (2) recurrence of symptoms; (3) limitation of motion; (4) stability of the joint; (5) strength of the operated knee as compared with the other; (6) pain since operation; (7) duration of convalescence, and (8) ability to return to former occupation. Questionnaires were sent to all patients who were operated on, and fifty replies were received.

Forty-three, or 86 per cent., were completely satisfied with the results of operation; three expressed themselves as being dissatisfied, and four as not being entirely satisfied. The last mentioned seven have all suffered recurrences of preoperative symptoms. Sixteen patients (31 per cent.), including six of the seven dissatisfied, had some limitation of motion. Three were

13. Jones, Robert: Notes on Derangements of the Knee, *Ann. Surg.* 50: 969 (Dec.) 1909.

14. Painter, C. F.: Internal Derangements of the Knee Joint, *Am. J. Orthop. Surg.* 1: 416 (July) 1919.

15. Parker, C. A.: Derangements of the Semilunar Cartilage of the Knee Joint, *Chicago M. Recorder* 30: 143 (March) 1914.

16. McWhorter, M. M.: Arthrotomy of Knee Joints Under Local Anesthesia for the Removal of the Medial Meniscus, *S. Clinics, Chicago* 4: 155 (Feb.) 1920.

limited in flexion only, three in extension only, and six in both flexion and extension. A complete analysis of the unsatisfactory cases will be given later in this paper.

Insecurity and weakness following operation seemed to be the chief complaint. In the seven unsatisfactory results, all the patients have impairment of strength, and all but one of stability. Among the satisfied patients, two complain of some instability, nine of weakness, and eight of both instability and weakness. Weakness is therefore present to a more or less extent in 53 per cent. of the cases. Power⁸ records it in 44 per cent.; some feeling of insecurity, he states, is present in an additional 36 per cent. In other similar series of cases, this important point is not stated or considered. Judging by the number of perfect results, the absence of the excised cartilage cannot account for it. The atrophy that is bound to occur to a more or less extent in the tissues making up the joint undoubtedly has a good deal to do with the sense of weakness that is present in such a high percentage. Furthermore, the original trauma, depending on the severity, of course, must often involve other joint structures sufficiently to cause permanent injury. When one bears in mind the relatively poor regenerative power of joint capsules and ligaments in general, it is not difficult to understand that when the articulating surface of the tibia and femur are separated sufficiently to allow the impingement and traumatization of the cartilage, the internal aspect of the joint capsule, in which is included the so-called internal lateral ligament, must suffer more or less permanent injury.

Pain was present in twenty-one cases, but in eleven of these is termed "occasional pain," or "depending on the weather." Power⁸ recorded it in 52 per cent. of his cases, about a quarter of them "dependent on the weather."

The average time for the full strength to return to the operated knee was eight months. The usual after-treatment was immobilization in a plaster cast for about ten days, followed by baking and massage and passive motions, followed soon after by active motion and weight bearing. Practically every patient returned to the former occupation or one more strenuous.

REVIEW OF THE UNSATISFACTORY CASES

We have endeavored personally to examine all patients that reported unsatisfactory results on the returned questionnaires.

CASE 1.—A man, aged 50 at present, was operated on sixteen years ago for "snapping in his right knee," which had continued for five years, and which started when he gave his knee a bad wrench getting off a street car. At operation the cartilage was seen to be displaced and thin. It was dissected out and a lipomatous growth also was removed. On his questionnaire he states that the result was unsatisfactory, that he has had recurrence of symptoms consisting of an occasional sense of derangement, limitation of acute flexion, some degree of instability, impaired strength as compared with the knee on the other side, and some pain when tired. He was seen personally. The physical examination was entirely negative. He states that he is experiencing the sense of derangement at increasingly rare intervals, the last time being more than six months ago. The instability was found to be noticeable only when he runs or subjects it to some unusual stress, and the pain occurs only when he is tired. He is still a carpenter and is doing heavy work without inconvenience. He admits that his leg is much better than before operation. A recent roentgenogram suggests a mild hypertrophic process, there being no evidence of any free body in the joint. In this case the long-standing preoperative condition would predispose toward comminution of the cartilage and consequent forma-

tion of bodies more or less free in the joint which could easily have been overlooked at operation and which may be the explanation in this instance. The prognosis in such a case should necessarily be guarded. He is unwilling to undergo another operation, and in view of his age and slight amount of disability there seems to be little indication for operative interference.

CASE 2.—A man, aged 27, was operated on eight years ago for recurrent locking and swelling that had extended over a period of two years, the original injury being sustained while playing football. At operation the "whole of the cartilage was removed and the joint washed out with sterile salt solution." The diagnosis given in this case was "lacerated internal meniscus," and although laceration was not mentioned specifically in the operative note, the fact that the joint was washed out, which was not done as a routine, suggests that the operator was fearful of leaving a fragment behind. On his questionnaire, he states that he is not satisfied, has had recurrence of locking, and that the knee is weaker than the other. He has experienced no pain, and is continuing at his occupation as mechanic. A free body was subsequently removed at another hospital by the same surgeon, with temporary relief from symptoms and later recurrence. This surgeon states that the man has still another free body in his knee and refuses further operation. This is another case in which the condition of the cartilage showed that a poor prognosis should have been given.

CASE 3.—A man, aged 28, was operated on seven years ago for the sensation of "something giving way in his knee causing marked pain" when he "walked fast or ran," having suffered with it for three years. He originally injured his knee while playing football. At operation "a portion of the cartilage, well out of normal position," was found. This was freed from the capsule and removed. On his questionnaire he states that he is not entirely satisfied; that he has had recurrences, and has some instability, weakness, and pain. When seen personally, he walked without a limp, saying that he had discomfort only when tired. He had enlisted in the army, serving throughout the war. His knee had so far improved that he again attempted to play football. He again "put it out," and since that time his knee has bothered him as noted above. The physical examination is negative. He is unwilling to undergo another operation. He said that previous to his original trauma, he had recurring attacks of "rheumatism," and that the knee was the joint frequently involved. In this case the result is probably due to the subsequent loosening of the part of the cartilage left behind in the joint, and his pain and discomfort are due to the chronic arthritic process already existing and augmented by the cartilage derangement. We could not persuade him to come to the hospital to have a roentgenogram taken.

CASE 4.—A woman, aged 45, was operated on five years ago for a stiff knee. She twisted the knee in falling six months previously. She was unable to walk for three months, and had limped since. A hypermobile cartilage was found which was removed. There was no mention of any abnormal condition of the tissues. On her questionnaire she stated that she is not satisfied with the results; the condition has been worse since operation; she is unable fully to extend or flex the joint, and it is unstable, weak, swollen and painful. She was seen personally. Examination of the knee showed marked bony proliferation at the edges of the articular surfaces of the femur and tibia, particularly the latter, giving the joint almost a dislocated or rather a subluxated appearance. She was unable to put any weight on it without extreme pain. Fifteen degrees permanent flexion was present, with 45 degrees motion. There was apparently no fluid in the joint, but the capsule was much thickened. We talked to her family physician, who said that she had an advanced tuberculous process in her lungs and had recently been failing rapidly. We consequently gave up our plan of trying to take a roentgenogram as her physician thought the trip would be too much for her. The condition was doubtless a tuberculous knee too early to be recognized at operation, and of a slowly progressing, proliferative type.

CASE 5.—A man, aged 34, was operated on between two and three years ago for intermittent swelling initiated by hurting

his knee thirteen months previously, in getting out of a wagon. He had no pain except in bad weather. An exploratory arthrotomy was advised because of his lack of improvement under such palliative treatment as baking, massage and plaster. This was done and a hypermobile cartilage was removed together with "a large piece of inflamed villous tissue, looking suspiciously like tuberculosis." A piece of this tissue was sent to the pathologist, who reports "chronic inflammation, no evidence of tuberculosis." There was no doubt but that at the operation there was some question of a pathologic condition present other than simply the hypermobile cartilage. A Wassermann test, unfortunately, was not made. He did not answer his questionnaire, and writes that he has not been satisfied with the result, that the swelling is the same as before, and that he cannot bend his knee as well as he could before being operated upon. He was seen personally. He walks with a marked limp, and on examination of the knee there was found to be rather marked bony proliferation about the edges of the articular surfaces, periarticular thickening of the capsule and neighboring tissues, and some fluctuant swelling on each side of the ligamentum patellae, but no evidence of any excess of fluid in the joint. Motion was limited in the extremes, and there was considerable coarse crepitus. With some difficulty we persuaded him to come to the hospital for a roentgenogram. This suggests a beginning Charcot joint. He would not permit us to obtain blood for a Wassermann test. In view of the record, we feel justified in calling this joint either tuberculous or syphilitic. We believe that at the time of operation, the condition had not progressed sufficiently to warrant a positive diagnosis. The antagonism of the patient makes further investigation impossible at present.

CASE 6.—A woman, aged 61, was operated on two years and a half ago for continuous pain in the region of the inner condyle, accompanied by swelling and limitation of motion. This followed an accident nine months before, when she twisted her left knee in getting off a moving street car. At operation "a loosened cartilage was removed." On her questionnaire she does not state whether she is satisfied or not, that she has had recurrences "in some way," some limitation in motion, weakness and continual pain. She has not been able to return to her work. As she lives at some distance from the hospital, we wrote to her family physician, who made an examination and states that "extension is limited to 45 degrees, no swelling of any account, no fluid demonstrable in joint at present. Palpation shows marked localized tenderness both internally and externally along the upper edge of the tibia midway. In my opinion there remains from some source a loose fragment in the joint or else a partially detached portion of cartilage." This conclusion seems justified, and a fragment of the excised cartilage which was not removed at operation is probably the cause of her trouble.

CASE 7.—A woman, aged 19, was operated on a year and a half ago for intermittent periods of swelling and pain in her knee initiated by an injury sustained when her knee was forcibly pressed against an iron upright, the force coming from the outside. At operation "the tip of the internal cartilage presented itself at the incision through the capsule and was found to be broken one-half inch from its anterior attachment. The entire cartilage was removed." In her questionnaire she states that she is not satisfied with the result; she has recurrence of symptoms consisting of limitation in extension, instability, weakness and pain. She lives in a near-by city and has been seen and examined recently by a member of the orthopedic staff of this hospital, who states that she has a perfectly satisfactory result, but that she is endeavoring to get more money from an insurance company. This, he believes, is her motive for returning such a poor report.

It may be seen from the foregoing reports that of the seven returning unsatisfactory questionnaires, one can be ruled out because of a satisfactory examination and ulterior motives, and two can be explained by the presence of coexisting disease, which leaves actually only four poor results. The reason for these undoubtedly lies in the removal of an insufficient amount of the offending cartilage.

CONCLUSIONS

1. The most reliable diagnostic features in this condition are: (a) traumatic origin with recurring disability; (b) definite localized pain or tenderness; (c) "locking"; (d) sense of derangement or feeling of insecurity, and (e) swelling.

2. We believe that simple hypermobile cartilage is a definite entity requiring surgical treatment, and that it is more common than fracture of the cartilage.

3. As complete excision as possible is the operation of choice, and with proper aseptic technic can safely be performed.

4. Once the diagnosis is definitely established, prompt operative interference should be seriously considered, provided, of course, there is sufficient disability.

5. The prognosis should be more or less guarded in cases with long-standing symptoms, and when on operation the cartilage is found to be lacerated or comminuted.

6. Operative results are better than statistics indicate, untoward results being due to the facts that, first, the deranged cartilage is only a symptom of an unrecognized and sometimes undeveloped condition such as a syphilitic or tuberculous joint; second, the original trauma and consequent atrophy cause permanent injury to other joint structures in addition to the cartilage derangement, which is logically not improved by its excision; and third, too much of the cartilage is left in the joint either as an unattached extremity or as fragments.

GASTRIC ANALYSIS

II. THE INTERDIGESTIVE PHASE OR THE PRINCIPLES GOVERNING THE PHENOMENA OF THE RESTING STOMACH*

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AND

PHILIP B. HAWK, PH.D.

PHILADELPHIA

A study of gastric phenomena throughout a single day reveals the fact that gastric digestion consists of a series of cycles. These cycles are first those in response to the entrance of food into the stomach, or the digestive cycles, and then the long or short pauses which we have called the interdigestive periods. One thing is certain: the fact that the digestive cycle is a constantly changing one, from the first entrance of food into the stomach to its final passage into the small bowel. This cycle is a composite of many factors which we shall shortly discuss in another communication. It is followed by a different series of changes which, collectively, are represented by the residuum or the contents of the fasting stomach. This interdigestive phase in health is accompanied by the phenomena of hunger as well as by a secretion of comparatively low velocity. In certain diseases of the stomach, the digestive cycle may infringe on the interdigestive phase and may obliterate it altogether. This has two effects—one the continuation of the factors which make up the digestive phase, and the other a shortening or cessation of the essential factors of the interdigestive period. If, however, the digestive phase

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* The expenses of the investigations on which this article is based were defrayed by funds furnished by Mrs. M. H. Henderson.

is unduly lengthened, it may even obliterate the long rest period or the nocturnal interdigestive phase, resulting in the so-called twelve hour retention of clinicians.

FACTORS MAKING UP THE INTERDIGESTIVE PHASE

A study of the characteristics of the residuum or fasting stomach on 100 normal men¹ showed these factors as characteristic of the interdigestive phase:

1. The average quantity in our studies as previously reported was 52.14 c.c., whereas Fowler and Zentmire,² in eighty samples from normal women, found it to be 49.44 c.c., thus making 50 c.c. the average normal residuum in health. This indicates that the stomach is never empty, and in health always shows an appreciable content indicative of an active secretion. Contrasted with the digestive phase, therefore, the secretion during this stage is much reduced and is poured out at a reduced velocity. The residuum has in every instance the qualities of a physiologically active secretion, and for that reason we have taken the opportunity of suggesting that the stomach is never inactive.

2. The total acidity of the normal residuum in health among men was found to be 29.9 and among women (Fowler) 30.3 in terms of tenth normal sodium hydroxid, or an average total acidity of 30, which is less than one half of the total acidity of the digestive phase. The significance of the marked lessening in acidity during this phase is discussed at a later point. The same thing is true of the free acidity. The average free acidity among men was found to be 18.5 and among women 15.6, with an average in both sexes of 17. This figure contrasts strongly with the free acid figures developed during the digesting period.

3. The pepsin concentration as measured by the Mett method gave an average among men of 2.8 and among women of 3.3, or an average in both sexes of 3, again different from the digestive phase.

4. Trypsin tested by a method developed in our laboratories,³ studied in sixty-three samples from women, gave an average of 5.2 units; in twenty-six cases from men the average was 9.1 units, and for both sexes the average was 7.1. This is of considerable significance, as we shall attempt to show.

5. In 56 per cent. of our reported cases the residuum was bile stained, and in 68.1 per cent. of the Fowler series the same point was noted, showing that there had been active regurgitation of bile in considerably more than one half of the cases, a phenomenon which in itself cannot be considered pathologic.

6. The cryoscopic index in our cases was 0.470, which is distinctly less than that of the blood (0.560) and indicates that there is a tendency for osmosis of material to take place from the blood into the lumen of the stomach.

7. We also pointed out that the residuum was one of the lightest fluids in the body, showing an average specific gravity of 1.0056, and was found to be inversely proportional to the total acidity.

In our studies, we pointed out two important facts: that (1) apparently the trypsin content was inversely proportional to free acidity, and (2) for low acid values the pepsin ran more or less parallel to the total

acidity. These facts are important, because they attempt to supply the basis for a normal standard so far as the interdigestive phase is concerned. From another angle, however, the factors making up the interdigestive phase might be thus enumerated:

1. Motor function is totally altered. Instead of active peristalsis, we have the so-called peristole function, by means of which the walls of the stomach are approximated. Then we have another series of changes recognizable by means of the intragastric balloon and the kymograph, namely, the appearance of tonal and hunger contractions. It is furthermore a part of the phenomena of the interdigestive period that in all probability in health the pylorus is relaxed. This is borne out (a) by the evidence of active duodenal regurgitation observed during this phase and (b) by the frequent observation on the fluoroscopic screen in which immediately after the administration of an opaque meal part of the meal is seen to enter the duodenum, after which the pyloric sphincter closes. We then have, as characteristic of the interdigestive or rest phase, motor phenomena very different from those seen during the digestive phase, accomplishing clearly two functions: (a) approximation of the gastric walls, and (b) relaxation of the pylorus, permitting a ready reflux of the alkaline duodenal secretion.

2. The secretory function during this period is different. Two points stand out clearly: that (1) the titratable acidity is less than one half of that encountered during the digestive phase, and (2) secretory velocity is much slower. This is very apparent in our studies on the psychic secretion.⁴ Three explanations seem possible: In the first place, the secretion is different, as it lacks both the psychic stimulus and the chemical secretagogues. It would seem that this interdigestive secretion as distinguished from the hunger secretion, which in many instances must contain psychic components, is possibly from a physiologic and chemical standpoint a different form of secretion from that which is elaborated during the digestive phase. Another explanation would be to consider this secretion as similar to that secreted during the digestive phase, but hypothetically neutralized by a neutral secretion arising possibly in the antrum. A third explanation of the distinctly reduced acidity of the interdigestive secretion is its neutralization by the regurgitation of the alkaline duodenal secretion. Lessened tonicity of the pylorus toward and during this period would favor this interpretation; and, as mentioned above, this contention is borne out by the finding that the trypsin content is inversely proportional to the free acidity.

3. A third and important phenomenon connected with the resting stomach is the one discussed last, namely, the undoubted effect of the duodenal secretion and its apparently reciprocal relationship during this period. During digestion, the pylorus clearly shows heightened tonus with but little regurgitation during that period as a result except that which is essential to maintain optimum acidity. On the other hand, during the interdigestive phase, these phenomena seem to be reversed, and unquestionably the statement made above regarding the inverse proportion between free acidity and the tryptic content of the fasting stomach is correct.

PATHOLOGIC STATUS OF INTERDIGESTIVE PHASE

From these facts, therefore, it is not difficult to deduce the things that occur in the presence of pathologic changes. In the first place, the interdigestive

1. Rehfuß, M. E.; Bergeim, Olaf, and Hawk, P. B.: *Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach*, J. A. M. A. **63**: 11 (July 4) 1914. Fowler, C. C.; Rehfuß, M. E., and Hawk, P. B.: *Gastro-Intestinal Studies, II, An Investigation of the Gastric Residuum in Over One Hundred Normal Cases*, *ibid.* **65**: 1021 (Sept. 18) 1915.

2. Fowler, C. C., and Zentmire, Zelma: *Studies of the Gastric Residuum, I, A Study of Eighty Samples of Gastric Residuums Obtained from Apparently Normal Women*, J. A. M. A. **68**: 167 (Jan. 20) 1917.

3. Spencer: J. Biol. Chem. **21**: 165, 1915.

4. Miller, R. J.; Bergeim, Olaf; Rehfuß, M. E., and Hawk, P. B.: *Am. J. Physiol.* **52**: 1 (May) 1920.

phase may be prolonged, diminished or altogether obliterated, and secondly, the normal factors making up this period will be altered.

By far the most frequent manifestation of disease is a curtailment or shortening of the rest period; or, to put it the other way, prolongation of the digestive period at the expense of the interdigestive period. These causes range from mild atonics to pronounced organic obstruction, with a total disappearance of the interdigestive period. How pernicious this vicious cycle can become can scarcely be appreciated until all the factors enumerated as characteristic of health are equally well known in diseased conditions. Several series of phenomena occur, however:

1. *Motor*.—There is a prolongation of the motor phenomena of the digestive period, namely, peristalsis, with a delay in the appearance or, as in dilatation, a disappearance of the peristole function. Another type of organic obstruction in which there is muscular fatigue or paresis presents the picture of almost complete disappearance of both the peristalsis of the digestive phase and the peristole of the interdigestive phase.

2. *Secretory*.—With the exception of certain malignant diseases and inflammations, a prolongation of the digestive phase and a reduction of the interdigestive phase is almost always accompanied by a continuance of all the secretory phenomena of the digestive cycle. The secretory velocity seems to continue high, the total and free acidities remain nearly those of the digestive phase, and there is every indication that the exalted secretion of the digestive period continues into the interdigestive period. The result, then, is the frequent finding of continued secretion or hypersecretion, with comparatively high acid figures, even after all food has left the stomach. In other words, the initial velocity of the digestive period continues over into the interdigestive period exactly as do the motor phenomena. In fasting, hypersecretion, or Reichmann's disease, we have an example of this fact, namely, that all the characteristics of the digestive secretion continue over into the interdigestive phase, with the exception that, whereas the stimuli to the digestive secretion undoubtedly arise from the presence of food, in the case of the syndrome mentioned above it is due to another stimulus and probably heightened tonus of the secretory nerves.

3. *Abnormalities in Gastroduodenal Correlation*.—While it is true that in health the normal individual shows evidence of increased regurgitation of the alkaline duodenal secretions and presumably from the evidence offered above lessened pyloric tonus, it is likewise true that in a certain group of gastric delays with elongation of the digestive period this mechanism is disturbed. We also have evidence to offer, suggesting that in certain pathologic conditions the normal regulatory mechanism is even disturbed during the digestive phase. The recognition of the importance of this mechanism as an important part of the normal digestion is essential to an understanding of some of the disease anomalies that occur. In some cases, the mechanism cannot be detected. Just what the significance of this is we are not at present fully prepared to state.

SUMMARY AND CONCLUSION

1. Normal digestive activity in the stomach comprises two periods interrelated with one another: one of gastric work in response to a stimulus which we call the digestive period, and the other the period of gastric rest between the work periods, which we prefer to call the interdigestive period.

2. The digestive period is a constantly changing one, gradually merging into the interdigestive period, which shows marked differences both in motor and secretory phenomena. One thing is clear, however—the stomach is never empty, and the secretion in the stomach, even during the interdigestive phase, is physiologically active.

3. We have attempted to enumerate the characteristics of the normal interdigestive or rest period on the basis of our previously reported findings on men and Fowler and Zentmire's observations on women, together with our subsequent observations, in order that some basis might be arrived at for a normal mean to serve in the interpretation of pathologic data.

4. The interdigestive period reveals three phenomena: the first motor, in which peristole and tonal and hunger contractions supplant peristalsis; the second a lessening in secretory velocity and a reduction of the titratable acidity to less than half of that seen in the digestive phase, and the third an alteration in the status of the stomach and duodenum during this period, which accounts for some of its characteristics.

5. In health, a satisfactory balance is maintained between the digestive and interdigestive periods. In disease, on the other hand, this balance is ruptured and altered, and the interdigestive period may be completely obliterated—a condition comparable to incompetence in other organs of the body.

6. In a subsequent communication, we intend to discuss the characteristics of the residuum in disease and suggest a basis for interpretation.

INDIRECT EXPULSION OF THE PLACENTA

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In the past, extraordinary devices have been resorted to in attempts to accomplish the delivery of the placenta. All of these had one thing in common: the application of force to take the place of the lost force that had expelled the fetus. These measures included drugs to produce sneezing and vomiting; violent kneading and pressure on the abdomen; vigorous shaking of the entire body; weights and strong traction on the cord, and direct manual removal.

The essential problem consists in aiding the overstretched abdominal wall with its diastased recti. Among women of uncivilized races, a posture is assumed which overcomes this problem: All crouch forward against the pubes with sharply flexed thighs, precisely as with difficult defecation.

To Ireland belongs the credit for having first shed scientific light on the problem. John Harvie of Dublin, in 1767, wrote about the change in uterine outline that occurs with separation of the placenta, and advocated pressure on the fundus to deliver it. William Dease of Dublin, in 1783, said: "Never attempt delivery of the placenta until the uterus is hard and the placenta detached. Delayed detachment can be facilitated by gentle friction of the uterus."

Meanwhile the great French pioneer, Baudeloque, had recognized and described, in 1781, the two essential steps in spontaneous delivery of the placenta: (1) separation, and (2) expulsion.

The nineteenth century saw the development of four distinct schools for the treatment of the third stage of labor:

1. French obstetricians, in spite of Baudeloque's observations, recommended traction on the cord, the line of pull being guided by frequent vaginal examinations. Champetier de Ribes, in 1883, omitted traction, and Auvard, in 1890, omitted the vaginal examinations, substituting light massage followed by pressure on the fundus with gentle traction on the cord.

2. In Dublin, Joseph Clarke, in 1817, advocated constant pressure on the fundus during birth and through the third stage, waiting from two to twenty-four hours. Macan, in 1887, advised friction every fifteen minutes and firm pressure at the height of the contraction. Byers, in 1900, came back to steady pressure on the fundus, no attempt to massage or stimulate, and when the placenta separated, delivery by pressure on the fundus during a pain.

3. In 1853, Credé in Leipzig suggested that from fifteen to thirty minutes after delivery, massage of the uterus be employed, becoming stronger, until at the height of a contraction, the uterus is compressed with resulting expression of the placenta. In 1861 he urged rapid emptying of the uterus as the normal treatment, massage and compression being done at once, averaging four and one-half minutes postpartum. The resulting retained membranes, fever and hemorrhages led him, in 1892, to go back to a thirty minute delay and then compression.

4. In 1898, Ahlfeld adopted the other extreme of "hands off the abdomen." Hemorrhage was merely observed by frequent change of pads and by the pulse, not, however, permitting excessive bleeding. After one and one-half hours he catheterized, massaged and expressed. Leopold went further in that he cut the cord and membranes at the cervix and waited up to twenty-four hours.

Out of all this has come a routine which is recognized by nearly all the American textbooks of today. Separation of the placenta must be allowed to develop spontaneously except in hemorrhage. Whether the fundus is lightly held, the abdomen untouched, or the hand sunken crosswise in the abdomen above the fundus, as is taught in the Michael Reese Maternity, there must be no massage. After thirty minutes, if separation has occurred, the placenta is expelled from its position in the lower birth canal by pushing the contracted uterus against it down the axis of the inlet, using the uterus as a plunger in a syringe. If separation has not occurred, "Credé" compression of the contracted uterus in situ is done, using massage if necessary and so expressing the placenta from the uterine cavity.

Separation of the placenta is easily determined by many signs such as:

1. Advancement from 10 to 15 cm. of a marker placed on the cord, all slack being removed first.
2. Elevation of the fundus level from 5 to 7 cm.
3. Anteroposterior flattening of the corpus uteri.
4. Greater mobility of the uterus.
5. Soft swelling just over the symphysis.
6. A furrow between this swelling and the overlying corpus.

Unfortunately, physicians generally do not distinguish closely between the separated and the retained placenta, and the third stage is usually terminated by a handling of the uterus, which far more resembles Credé compression than the simple plunger descent, which is all that is necessary in the vast majority of cases.

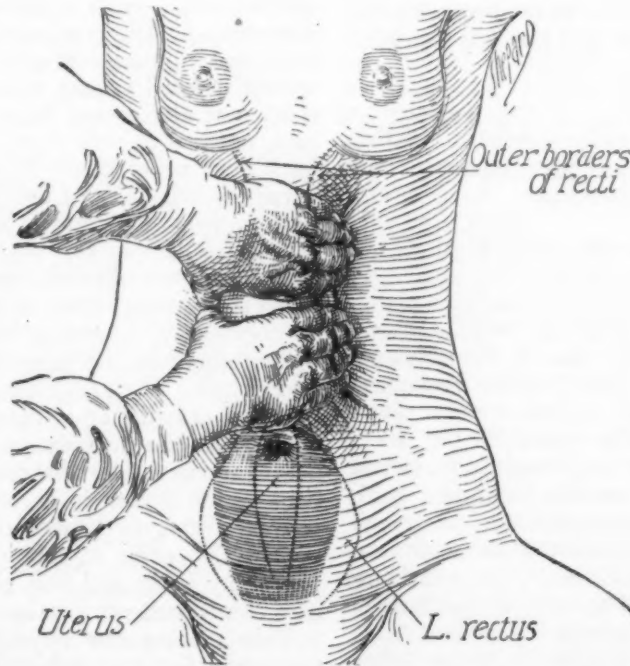
Since unskilled handling can definitely stir up a metritis, produce late hemorrhage, or rupture a pus tube by a lateral instead of a median grasp of the fundus, any method of ending the third stage that does away entirely with handling the uterus is worthy of consideration.

A procedure has been described¹ which is a reversion to nature's spontaneous method, utilizing the full power of the abdominal muscles to drive the uterus down against the separated placenta and so expel it:

After the usual period of waiting, averaging half an hour, the placenta being separated, the uterus being in the midline and at the height of a contraction, as evidenced by its hardness and the pain the woman is experiencing, the abdominal wall is grasped by one or two hands, crosswise above the umbilicus, the fingers on one side beyond the rectus, and the thumbs on the opposite side also beyond the rectus. The recti are then pulled together and held firmly, thus taking up all the slack in the relaxed overstretched wall. The woman is now urged to bear down exactly as in the second stage of labor. Cooperation is essential but need last only a moment, the placenta being expelled exactly as in the spontaneous cases. Successful cooperation can be told by the tensing of the recti and their tendency to pull apart. The correct grip prevents this and the force is properly transmitted, that is, against the uterus.

The method is applicable only after separation has occurred; but even if used as a routine in all cases because of inability to recognize separation, its failure is harmless and can always be followed by a simple expression or a "Credé," as the case may require.

An analysis of 400 consecutive cases in the Michael Reese Maternity gave these results. Nineteen men participated, of whom seventeen were interns. In forty-eight cases the method was not used because of complications, such as eclampsia, inertia uteri, exhaustion and Credé for retained placenta. In sixty-three



Crosswise grasp of abdominal wall above umbilicus, pulling recti together while woman bears down and expels the separated placenta.

1. Baer, J. L.: A Method of Delivering the Placenta, J. A. M. A. 72: 1543 (May 24) 1919.

cases the placenta was delivered spontaneously. Therefore, in 289 cases in which the method was tried, 237 were successful at the first trial (thirty minutes postpartum), eleven cases were successful at the second trial (forty-five minutes postpartum), and one was successful at the third trial (sixty minutes postpartum), a total of 249 successful, or 86 per cent. Twenty-two cases were listed as "no cooperation" (inability to bear down). Eighteen cases were listed as "failure" after sixty minutes.

Study of the forty unsuccessful cases shows that sixteen occurred in primiparas; but this is about the ratio of primiparas to multiparas in the whole series. Among the eighteen cases listed as "failure," twelve occurred with one intern. If his cases were entirely eliminated, the series would stand: method tried in 277 cases; successful in 249 cases, or 90 per cent.

CONCLUSION

A method of delivering the placenta which is 90 per cent. efficient in the hands of seventeen men of limited experience, and which entirely avoids manipulating the uterus, is worthy of a fair trial and possibly adoption as a routine.

PERFORATIONS OF THE NASAL SEPTUM DUE TO INHALATION OF ARSENOUS OXID

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In the process of copper smelting, volatile gases, chiefly arsenous oxid and sulphur dioxid, are given off as waste products; passing through the flue system of the smelter, they cool off and deposit as flue dust. Formerly this dust, which was about 20 per cent. arsenous oxid, was purified for the arsenic in it, or put back into the furnace to get out the contained gold, silver and copper. About two years ago a Cotrell treater was installed, through which the smoke passes, and the solid particles are precipitated by the polarizing action of the charged plates. The arsenic molecule is attracted to the positive or negative pole and then shaken into a hopper below. This is 20 per cent. arsenous oxid and a mixture of silica, sulphur, iron, etc. The dust is transported to another furnace and the fumes, or volatile arsenic, passed through another Cotrell treater, and the recovered precipitate is from 75 to 90 per cent. arsenous oxid. This is pure enough for "weed-killer." However, some preparations need a higher proof arsenic; then this 75 to 90 per cent. arsenic is treated in a refining furnace and the fumes are deposited in arsenic kitchens. At about 420 C. or less, the arsenic is deposited as a fine white powder from 99 to 100 per cent. pure, although lumps may occur which may necessitate grinding. Thus the men at the treaters, and the loaders, railway crews, dumpers, furnace men, refiners, kitchen wheelers and men barreling all come in contact with tons of arsenous oxid daily.

This arsenic dust is breathed into the nose and, coming in contact with moisture, forms arsenous acid, which causes necrosis of the septal mucosa at Kiesselbach's area. The traumatism of the air currents alone often keeps this portion of the septal mucosa irritated, especially if there is a deflection or ridge of any sort. A white, slightly elevated area about 5 mm. in diameter develops. If proper care is taken to protect this area

with a camphor-menthol-liquid petrolatum mixture on cotton, the condition will resolve to normal. However, most workmen neglect the condition until there is a perforation of from 7 to 10 mm. through the mucosa and perichondrium down to the cartilage on one side. Even at this stage the process can be controlled by persistent local medication. If this is not done, the other side of the septum undergoes a similar process of necrosis, and the cartilage disappears from dystrophy. The 7 to 10 mm. area of cartilage rarely comes out *en masse*.

The perforation completed has the appearance of a squarely amputated finger, the cartilage being flush with the mucosa. The mucosa swells to twice its normal thickness on each side; the edges are gray, sloping, edematous and everted. It then separates from the cartilage from 0.5 to 1 mm. as though elevated mechanically, as in a submucous resection. Curiously enough, no septal abscesses have been noted, probably because of free drainage. The cartilage becomes slightly thicker than normal. Since the thickened cross-section of the perforation is swollen into each naris, there is marked obstruction. The cross-section of cartilage and mucosa, having no mucous glands, aids in the formation of extensive hard crusts, also obstructive. The perforations extend forward to within 1 cm. of the columna nasi, upward to only 1 cm. of the roof, so that saddle-back nose never results; backward even as far as the perpendicular plate of the ethmoid but never into it, as does syphilis, and downward even to the crest of the vomer.

Spontaneous physiologic cure of the crusting results when the cartilage near the perforation, being separated or only loosely in contact with the mucosa, disappears by necrosis and the mucosa to mucosa approximation takes place. Then only a large perforation with no discomfort, crusting or symptoms remains. The cartilage anterior to the perforation thins out by absorption in a few weeks. The absorption of the cartilage above, behind and below is a more prolonged and delayed process averaging from three to five years in the cases seen. Two cases of thirty years' duration, and many of twenty years and less, show the completed process of a thin-edged perforation with no crusting.

This spontaneous physiologic cure of perforations too large for successful plastic flaps, namely, those 1 cm. or more in diameter, led to an operation which gives the same result in ten days instead of from three to five years. The quadrilateral cartilage anterior to the perforation being absorbed and the mucosa to mucosa approximation automatically occurring here without any interference, it remains only to elevate the mucosa above, behind and below the perforation. This is done as in a submucous resection under cocaine and epinephrin anesthesia. The cartilage is removed in all directions from 0.5 to 1 cm. from the perforation, to allow the flaps to approximate. In some deflected septums a submucous resection was performed, Simpson splints were inserted in each naris for twenty-four hours, and a camphor-menthol-oil spray used thereafter.

Naturally, in perforations of 1 cm. or less, a plastic operation of the Hazletine type, in which a vertical incision is made posterior to the perforation and the flap brought forward, is performed. There is not enough mucosa anteriorly to bring a similar sliding flap backward from the other side without leaving an exposed mucocutaneous junction. In one case in which the perforation was 7 by 12 mm. with the long axis

horizontal, the incision was made above the perforation, just below the nasal roof, and the sliding flap sutured down with success.

A third procedure fraught with difficulty, and obviously less practical in treating such an enormous number of perforations, but valuable in any other type of perforation, consists in making an impression of the hole with dental compound. From this model is made a pair of platinum-gold or vulcanite plates; on the inner surface of each a male and female clasp is attached as on a glove, one is inserted in each nostril, and then the two are snapped together. The difficulty of making an impression of each individual perforation and finely calipered measurements of the distance which must separate the plates in front, behind and below, and the cost of platinum-gold preclude its use as a routine. Winans has spent considerable time and energy on various obturators to close perforated septums, but the same objections obtain to these.

TYPICAL HISTORIES

The subjoined histories are typical of arsenical septal perforations as they occur in the arsenic department of the largest copper smelter in the world, in which I have treated seventy-five such cases in the last few months and have observed many more.

A man, aged 37, married, began work in the arsenic plant ten weeks before I saw him. After one week the nose became obstructed. Large crusts were blown out night and morning. There was no nasal discharge, rhinorrhea, pain or headache at any time. The nose whistled sometimes. After removing the crusts from the septum for three weeks, he could feel the tip of his little finger extend to the opposite side of the nose from the one he was picking. There was no epistaxis at any time. (There is usually a slight epistaxis the first two or three weeks.) The nasal obstruction caused mouth breathing with resultant pharyngitis, and one week later a low grade subacute laryngitis ensued. The patient was also nervous and suffered from insomnia for several weeks after beginning work, but recently had become better adjusted. There were no gastro-intestinal disturbances. Arsenic makes tobacco smoke taste sweet. From the first week there was an acute arsenic dermatitis involving the skin of the face, especially around the nares where the dust came into contact with moisture or skin abrasion. This skin was stiff, and movement was painful. There was also from the first week a palpebral dermatitis with redness, swelling and ichthyosis-like change of the skin of the eyelids, and a persistent keratoconjunctivitis which will be more fully described in another paper. Examination revealed a 1 cm. perforation of the cartilaginous septum filled with a hard, thick crust. The edges of the hole were sloping, everted, hyperemic, edematous and covered with a thin, white exudate. There were no granulations of healing. The rest of the nasal mucosa was hyperemic, contributing to nasal obstruction. The turbinates were not involved. The blood Wassermann test was negative.

A man, aged 50, single, had been working on the Cotrell treaters six months. There was no nose trouble. He was referred from the medical department for treatment of acute arsenic laryngitis. He could not talk above a whisper. Examination after such a negative history revealed a deflection of the septum to the right and a concavity on the left. There was a crust on the left side of the septum. When the crust was removed, a perforation through the mucosa and perichondrium down to the cartilage appeared which was 7 mm. vertically by 10 mm. horizontally. It was situated 17 mm. from the columna nasi, 15 mm. from the roof, and 10 mm. from the floor of the nose. The mucosa perforation edge was 4 mm. thick behind but, when the sloping edge was measured, 5 mm. The mucosa was only 3 mm. thick in front. The edges of the ulcer thus were regular, sloping, deep and covered with a thin layer of gray adherent exudate, which on removal presented pin-point oozing blood vessels.

In an unusual case there was a 1 cm. perforation of the mucosa and cartilage in the right nostril and a destruction of mucosa 2 cm. in diameter in the left nostril, but the exposed cartilage remained intact over one month under observation, through the nourishment received from the right mucosa.

COMMENT

Most patients have a slight epistaxis during the first three weeks in the ulcerative stage. In a series of ten consecutive cases, the blood Wassermann tests were negative. This, with the direct history and a septal perforation involving only the quadrilateral cartilage and never bone, precludes a syphilitic etiology.

Prophylaxis by wearing a gas mask is not feasible for a workman on an eight hour shift. Nose guards and respirators cause an accumulation of moisture around the edges in contact with the face, resulting in severe dermatitis. Cotton plugs in both nostrils cause resultant pharyngitis and laryngitis. The camphor-menthol ointment and "bag-house" salve¹ (ferri hydroxidum cum magnesi oxidum) are efficient prophylactics if used constantly.

Kober and Hanson² state that after perforation is complete there is no further inconvenience, which is not borne out by my experience. The crusting and resultant nasal obstruction and the sequelae, pharyngitis and laryngitis, are distinctly distressing. Similar to chrome workers, the majority of workers in contact with arsenous oxid develop perforations of the nasal septum within six months. Neither age nor race provides protection.

I am inclined to differ with Rothstein as to the theory that these perforations are due to primary injury of the Kiesselbach area by the finger-nail in picking the nose, as occurs in tabetics. I am convinced that the inhalation of arsenous oxid and hydration to arsenous acid on this area of least resistance of the septal mucosa cause a tissue necrosis and defense reaction of hyperemia. Obstruction follows. This leads to vigorous blowing of the nose, all of which factors form the basis of the original abrasion. Contrary to other observations, the many cases seen here have presented local and not systemic effects.

Arsenic is found in most Rocky Mountain copper ores, and this report is made because workers in mining communities are prone to be floaters, and the crop of perforations from one such community can furnish material for observation by many physicians. Also, as Davis³ so aptly wrote, "physicians should be kept alive to the additional health hazards incident to the recent widespread development of the chemical industries of the United States."

SUMMARY

1. Arsenous oxid is a valuable by-product of the Rocky Mountain copper ore smelting, and many workers come into contact with tons of the pure product daily.
2. Arsenous oxid causes a characteristic septal perforation and associated pathologic condition of the skin, throat and eyes.
3. Treatment consists of: (a) resection of cartilage, producing mucosa to mucosa approximation, or, in smaller perforations, (b) plastic operation or (c) a mechanical obturator to relieve the objectionable crusting.

1. "Bag-house" salve is so called because it was used by men who worked in a room of bags through which the flue dust passed, separating out the arsenic, before the days of Cotrell treaters.
2. Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916, p. 5.
3. Davis, B. F.: Two Cases of Perforation of the Nasal Septum Due to the Inhalation of Arsenic Trioxid, J. A. M. A. 68: 1620 (June 2) 1917.

ANGINA PECTORIS OF DIABETES

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Of the ills that the diabetic is heir to, not the least annoying are the attacks of angina pectoris to which some of them are subject. Among diabetics, a man of middle age, a woman nearing her menopause or during her climacteric will frequently complain of the distressing pain in the region of the heart. The physician passes it by lightly and ascribes it to an attack of "nerves." He listens to the heart sounds and finds them normal; the blood pressure also is normal, and the patient is assured that "everything is all right."

It seems to me that clinicians have not been impressed with the cardiovascular changes that are present in diabetes. This angina pectoris to which I wish to call attention is especially overlooked. In the excellent work of Sir Clifford Allbutt on "Diseases of the Arteries Including Angina Pectoris" no mention is made of diabetes in relation to this condition. He does speak of blood pressure in diabetics, but that is as far as he goes. If one looks at the index of Joslin's book on "Diabetes," one finds no mention of angina pectoris or heart complications.

The diabetic patient who does not suffer from granular changes in the kidneys usually has a low blood pressure. It was Potain, according to Allbutt, who seems to have originated the supposition that diabetes was a disease of high blood pressure. This, however, was denied by Elliott, Janeway and Allbutt. If arterio-

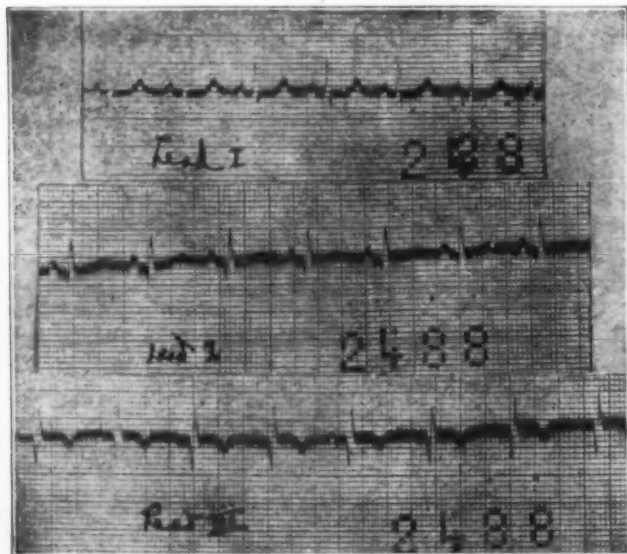


Fig. 1.—Electrocardiographic tracings in Case 1.

sclerotic changes are found in the arteries of diabetics, the condition may be ascribed to some toxic factor, rather than to high tension. The diabetic who shows a marked increase in blood pressure with cardiac hypertrophy has invariably a marked pathologic condition of the kidneys, either induced by the diabetic state itself or as a concomitant condition.

In the accompanying tables are shown figures of systolic and diastolic blood pressures that I have obtained in a large series of cases. I have chosen for

presentation here seventeen cases of "pure" diabetes and eleven cases of diabetes complicated by cardiorenal disease, for I did not think it necessary to present the entire series. It will be seen that patients with uncomplicated diabetes have a normal or subnormal blood pressure, whereas those patients who also show a pathologic condition of the kidneys have the high blood pressure common in that condition.

Nevertheless, in the middle aged patient with normal or low blood pressure, the physician frequently finds

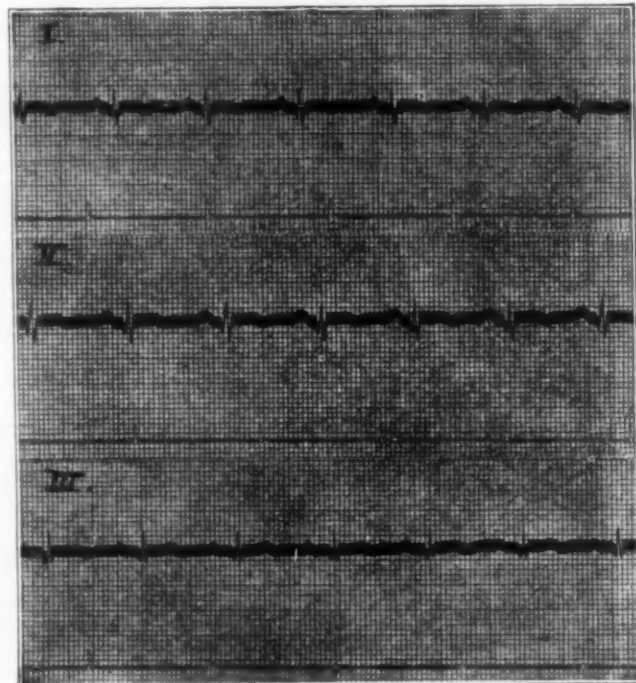


Fig. 2.—Electrocardiographic tracings in Case 2.

one whose main complaint is the attacks of angina pectoris. The pain may not be very excruciating but still induces marked anxiety. The patient is compelled to stop whatever work he does. If he is walking, he suddenly has to halt and one will see him press the left side of the chest. Often the pain radiates to the neck or left shoulder and arm.

These anginal attacks do not seem to occur when the patient's glucose tolerance is not exceeded. A high blood sugar with glycosuria in such an individual will frequently cause the recurrence of the attack. Such a person will soon learn that eternal vigilance is the price of freedom from pain, and he will scrupulously obey the physician's orders.

It appears that the carbohydrate storage in parts of the heart has something to do with cardiac conductivity. It has been found by certain investigators, notably Saigo, that the fibers of the bundle of His are markedly richer in glycogen granules than the ordinary cardiac muscle fibers. It is logical to assume that in the condition of diabetes there is a lowering of the glycogen storage here as elsewhere in the body, with a resultant distinct disturbance in the nourishment of the cardiac musculature, terminating in myocardial pathologic changes.

Cardiographically, a number of the diabetic patients suffering with this condition will show an inversion of the T wave in one or more of the three leads. Until recently this was thought to be a normal, unexplained

variation in the curve. Willus,¹ however, has recently pointed out that such an inversion is usually due to some myocardial pathologic condition.

REPORT OF TYPICAL CASES

The three cases of diabetes reported here were chosen from a large number; two of the patients had low blood pressure and attacks of angina pectoris; the third, high blood pressure and cardiorenal complications.

CASE 1.—Mrs. B. L., aged 48, who had two children, and whose venereal history was negative, had diabetes, the symptoms of which began four years before examination. Sugar in the urine was 4.2 per cent.; blood sugar, 0.37 per cent. The systolic blood pressure was 122; diastolic, 82. The phenolsulphonphthalein test was 42 per cent. in the first hour and 37 per cent. in the second hour. The urine showed no albumin or casts. There was marked oppressive pain in the chest on

The systolic blood pressure was 168; diastolic, 104. The patient did not complain, it happened, of any cardiac oppression.

CONCLUSION

It appears to me that, in treating a diabetic patient complaining of cardiac distress, the physician should make a thorough examination of the heart, and determine whether or not the case is complicated by renal disease, and should prescribe the rest and quiet so essential in its relief, besides using the various medicinal remedies in his armamentarium as well as controlling the diet. The bromids and codein may be used as a sedative. One should particularly remember the fact that diabetes is essentially a disease of low blood pressure and one should not, on hearsay, prescribe the various drugs that induce reduction of blood pressure in his attempt to ameliorate the pain of angina pectoris.

TABLE 1.—BLOOD PRESSURE DETERMINATIONS IN UNCOMPLICATED DIABETES

Case	Age	Sex *	Systolic	Diastolic
1	M. W.	32	110	76
2	B. F.	46	128	82
3	M. M.	27	116	70
4	B. L.	48	122	82
5/	R. S.	30	118	74
6	J. B.	26	110	64
7	J. G.	45	126	80
8	L. A.	60	140	90
9	L. S.	42	128	86
10	L. A.	37	122	70
11	B. A.	40	134	68
12	S. A.	55	138	76
13	A. B.	41	132	74
14	D. B.	10	110	60
15	I. M.	6	108	62
16	B. F.	9	112	70
17	D. B.	37	126	74

* In the tables, ♂ indicates male and ♀ female.

TABLE 2.—BLOOD PRESSURE IN CASES OF DIABETES COMPLICATED BY CARDIORENAL DISEASE

Case	Age	Sex	Systolic	Diastolic
1	D. B.	36	168	104
2	M. S.	57	180	116
3	R. L.	58	170	110
4	I. D.	60	186	118
5	L. B.	27	166	96
6	B. B.	55	170	90
7	I. E.	56	164	100
8	B. F.	67	178	110
9	M. F.	38	140	85
10	J. G.	53	166	104
11	G. K.	50	156	92

exertion, radiating to the neck and the left shoulder. The electrocardiogram showed inversion of the T wave in the third lead.

CASE 2.—Mr. L. S., aged 42, merchant, married, with three children and with a negative syphilitic history, had diabetes, the symptoms of which began three years before. Sugar in the urine was 2.6 per cent., in the blood, 0.28 per cent. The blood pressure, seated, was 128 systolic and 86 diastolic. The phenolsulphonphthalein kidney test was 38 per cent. in the first hour and 32 in the second hour. There was no albumin or casts in the urine. Sometimes, while the patient was walking, an attack of pain began in the left forearm with the sensation of a marked constriction in the cardiac region. He would become anxious and be obliged to sit or lie down. The pain lasted a short while, but recurred on exertion. On treatment and proper dietetic care the attacks disappeared but reappeared when the patient became lax in his diet. This patient also showed an inversion of the T wave in the first and second leads.

CASE 3.—Mrs. D. B., aged 36, with three healthy children, and with a negative venereal history, had diabetes, the symptoms of which began two years before, following an attack of gallstones. Sugar and albumin were very heavy in the urine, with many casts; the renal function was very poor.

SPLENOMEGALY WITH MULTIPLE ABSCESSSES OF THE LIVER

REPORT OF CASE

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While it is generally understood that more or less splenic enlargement commonly occurs with diseases of the liver, especially the cirrheses, no satisfactory explanation of the relationship between hepatic disease and splenomegaly is available. Whether the changes encountered in the two organs are the result of a common toxic cause, or whether the splenic hypertrophy ensues as a direct consequence of affections of the liver, are questions still unsettled.

It is also well known that in severe septicemias the spleen often attains considerable size; but of the exact nature of the process of hyperplasia, little has been learned.

Classifications of splenomegalies according either to etiology or pathologic changes in the organ are often disappointing, and not infrequently an enlarged spleen even of conspicuous degree is a finding difficult to correlate with other evidences of disease.

The case reported herewith presents several interesting features; especially does it exemplify an unusual degree of splenomegaly occurring in the course of a severe infectious disease and also in the presence of profound hepatic disturbance.

REPORT OF CASE

History.—M. L., a married white woman, aged 35, entered the Johnston-Willis Hospital, Nov. 27, 1919, complaining of abdominal pain, jaundice and swelling of the abdomen. The family history was unimportant. The patient's health had been excellent prior to 1915. One child, aged 5 years, was living and healthy; there had been no complications of pregnancy, and no miscarriages. The patient had not menstruated in four years. In 1915 she began to suffer attacks of epigastric pain which required morphin for relief and were followed by jaundice and clay-colored stools. After these had occurred for six months she was operated on, and one small stone was found in the gallbladder. Cholecystectomy and appendectomy were performed. Following the operation, drainage from the wound continued for four months; and when it ceased, jaundice and pain reappeared, accompanied by chills and fever. In May, 1919, she was operated on again on the presumption that a stone had been left in the common duct; but after a very dense mass of adhesions between the liver, stomach and duodenum had been separated, a probe passed into the duct

1. Willius, F. A.: Am. J. M. Sc. 100: 844 (Dec.) 1920.

detected no obstruction. At this operation no evidence of gross enlargement of the liver or spleen was noted, and during convalescence the jaundice entirely disappeared. For more than a year, however, there had been deep jaundice with dark urine, light colored stools and frequent attacks of pain. For four months the abdomen had been gradually increasing in size, and there had been considerable dyspnea on exertion, with moderate swelling of the ankles. For three months the ends of the fingers had been enlarged.

Physical Examination.—The patient was emaciated; breathing was labored; the skin and conjunctivae were deeply jaundiced. The fingers showed definite clubbing. The heart appeared to be displaced slightly to the left, but was otherwise normal; the blood pressure was not increased. The lungs were negative except for moderately diminished expansion, resonance and breath sounds at the right base posteriorly. The abdomen was distended and tense, with shifting dullness, fluid wave and a large indistinct mass filling the upper half. No enlargement of the superficial veins was made out. Tapping in the median line resulted in the removal of 4,500 c.c. of deeply bile-stained fluid, and following this the liver and spleen could be plainly made out. The liver extended 3 inches below the costal margin, was smooth, not tender, and gave a well defined edge. The spleen reached beyond the median line and to within 1 inch of the crest of the ilium; the edge and notch were easily felt.

Laboratory Findings.—Blood examination revealed: hemoglobin, 60 per cent.; red cells, 3,000,000; white cells, 10,200; polymorphonuclears, 88 per cent.; small mononuclears, 2 per cent.; large mononuclears and transitionals, 10 per cent. The smear showed considerable variation in the size of the red cells, but no nucleated cells were found and there was no evidence of basophilic degeneration. The blood Wassermann test was negative. The urine was dark, turbid and acid; the specific gravity was 1.020; there was a distinct trace of albumin; there was no sugar; bile was present. Microscopically there was a moderate number of pus cells and a few granular casts.

Summary.—There had been cholecystectomy four years and exploration of the common duct eighteen months prior to admission to the hospital. There had been intermittent attacks of abdominal pain, with chills and fever and almost constant jaundice, for four years. There was rapid enlargement of the liver and spleen, with ascites and clubbing of the fingers.

Subsequent Observations.—The temperature was irregular and of a septic type, with frequent chills and sweats. The abdominal fluid reaccumulated and was removed by tapping about every ten days. Cough and signs of fluid at the right base increased. Roentgen-ray examination, Jan. 2, 1920, indicated a moderate amount of fluid in the right lower chest with displacement of the heart to the left. Further examinations of the blood revealed a slight leukocytosis with secondary anemia. Death occurred, January 23.

Necropsy Findings.—The abdomen was distended and contained about 3 gallons of clear, yellow fluid. The omentum was adherent to the abdominal wall anteriorly at the site of several puncture wounds. A dense mass of very strong adhesions bound the stomach, duodenum, liver, colon, right kidney and diaphragm. The liver weighed 2,394 gm. and contained numerous abscesses filled with greenish pus and varying in size from microscopic to the size of a hen's egg. The upper surface showed two openings through which abscesses had ruptured through the diaphragm into the right lung. The ducts were patent and no stones were found. The spleen weighed 1,888 gm., and was smooth and rather soft. No gross or microscopic abscesses were found, and no evidence of thrombosis. The microscopic appearance was that of an acute splenic tumor such as is found in the septicemias. The right lung showed pockets filled with pus. The heart was small, with evidence of fatty degeneration in the myocardium; otherwise it was normal. The kidneys were rather large, the capsule stripped readily, and no abscesses were found. The uterus was slightly distended, and pressure expelled pus of the same appearance as that from the liver and lung. Cultures from the pus showed a pure growth of a gram-positive diplococcus of the pneumococcus group.

COMMENT

A discussion of the factors underlying a given splenic enlargement is, of necessity, largely speculative. Little is known of the physiology of the spleen, while the etiology of the several clinical entities in which the organ attains great size is poorly understood. The splenomegaly in the case reported far exceeded that usually encountered in septic conditions, and appears to have been a much more rapid process than that accompanying hepatic cirrhosis. Clinically, there were present many of the features of hypertrophic biliary cirrhosis, jaundice, enlarged liver and spleen, fever, pain and clubbed fingers. Portal obstruction, however, occurred early.

The case is of interest in that it shows an unusual combination of clinical and pathologic findings, probably arising as a result of an acute cholangitis.

JUVENILE TABES*

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The extreme rarity of tabes in the young as compared with its incidence in later life is so striking that most standard textbooks on neurology comment particularly on the absence of tabetic phenomena in early life. Some authors casually mention a few cases reported by others, from which we may infer that they had not observed any personally. This is particularly true of American authorities; in a measure this applies to foreign authors as well, with the notable exception of Oppenheim,¹ who states that there is no doubt that a tabetic process may begin in childhood (although Gumperts, Kalischer, Marie and von Leyden [quoted by Jones²] had denied its existence), and mentions the interesting fact that he had observed a dozen cases.

To Remak³ must be given the credit for bringing juvenile tabes to the notice of the profession in 1885. At that time he reported three cases and made the interesting statement that Henoch, in 1875, at a meeting of the Berlin medizinisch-psychologische Gesellschaft⁴ had mentioned the fact that he had seen the development of tabetic symptoms in a 6 year old child, but had hesitated to make the diagnosis, since all the subjective phenomena had disappeared. In the discussion following Henoch's remarks, Westphal stated that he also had observed a boy showing well defined tabetic phenomena whose symptoms had undergone considerable amelioration. He made the significant statement that both cases cited were possibly in a stage of remission.

The next important contribution was made by Marburg⁵ in 1903 from Fuchs' eye clinic. Dr. Marburg reviewed thirty-four cases in the literature and added some of his own. By this time juvenile tabes had evidently awakened considerable interest, so that case reports continued to appear, principally in the French and German literature. The greatest contributions to the subject have been made by the French, notably by

* From the Neurological Department of the Hospital for Joint Diseases.

¹ Paper read and patient presented before the New York Neurological Society, Dec. 7, 1920.

1. Oppenheim: Textbook of Nervous Diseases, 1912.

2. Jones, Ernest: Brit. J. Dis. Child., April, 1908.

3. Remak: Berl. klin. Wechnschr., 1885, No. 7.

4. Arch. f. Psychiat. 6: 609, 1875.

5. Marburg, O.: Klinische Beiträge zur Neurologie des Auges: Infantile und Juvenile Tabes, Wien. klin. Wechnschr. 47: 1295, 1902.

Cantonnet,⁶ curiously enough an ophthalmologist. Remak, who brought the disease to the attention of the profession, reported his cases from an ophthalmologic clinic. That the juvenile tabetic seeks the aid of the oculist rather than that of the neurologist is not surprising in view of the large number in whom early visual difficulties develop.

To earlier observers, the difference between juvenile tabes and Friedreich's hereditary ataxia was not always apparent; and as a result, considerable confusion was created by reporting as types of tabes cases in young persons who were the subjects of ataxia manifestations. Hildebrandt⁷ was the first to call attention to this error, and after an exhaustive critical study of case reports rejected from twenty to thirty cases and selected ten as worthy of consideration as true juvenile tabes. Subsequent writers, notably Raymond,⁸ Dydynski,⁹ Brasch,¹⁰ Linser¹¹ and Lasarew,¹² tried to restrict the number in successive publications. Malling¹³ attributed the diffidence of observers in accepting juvenile tabes as a true clinical entity to the fact that no necropsy had been recorded to prove the existence of such a disease process. This attitude, he adds, is no longer tenable; for in 1910, he claimed the distinction of reporting the first necropsy record of a case which showed the characteristic pathologic changes of tabes so familiar to us from studies in the adult.

Are the differences between the juvenile and adult types of tabes so fundamental that earlier observers are justified in denying the existence of the former, or does it present special characteristics that make its recognition difficult? According to Gordon,¹⁴ the tendency of such writers as Hildebrandt, Mendel, Kalischer, Berkez and Dydynski to ascribe special features to juvenile tabes is unjustifiable. While Gordon is assuredly correct in his attitude, so far as the symptomatology is concerned (for there is no symptom in the adult that has not been observed in the juvenile), certain differences in the clinical course of both types stand out prominently and will be dwelt on more fully later.

CHARACTERISTICS OF JUVENILE TABES

Having sketched in a general way the development of the recognition of juvenile tabes as a distinct clinical entity, we may proceed with an analysis of the various factors that create the syndrome of the tabetic in the young, and may note in what respects it differs from the accepted orthodox type as observed in the adult.

Age Incidence.—According to most observers, the average age when the disease first manifests itself is placed at 15 years. Mingazzini and Baschieri-Salvadori¹⁵ report an onset at 3 years of age in the youngest recorded case. As a general average, the onset occurs in youth, about the same number of years after the primary infection as in the adult.

Etiology.—In the vast majority of cases, hereditary syphilis is responsible for the development of tabes in the young. There are authenticated reports of a few cases in which syphilis acquired in infancy from the nurse or parent was responsible for the disease in early

youth. That hereditary syphilis can produce tabes in adults has also been observed. Nonne reports two such cases.

Sex Incidence.—In Cantonnet's analysis of eighty-nine cases of juvenile tabes from the literature, there were nearly twice as many females as males. Gowers' records show a striking reversal in later life and place the proportion as ten men to one woman. One may venture an opinion as to the cause of the greater frequency in men, but to account for the marked preponderance in young females would probably be a more difficult matter.

Onset.—The mode of onset in a large number of cases (between 35 and 40 per cent.) was an early visual difficulty which rapidly proceeded to optic atrophy and blindness. These figures are far in excess as compared with the visual disturbances noted in the adult type of tabes. Lancinating pains marked the onset in 25 per cent. of the cases, as compared with 70 per cent. in the adult. Bladder disturbances ushered in the disease in a considerable number of cases. Gait defect was the first symptom observed in a small number of cases. Cantonnet remarks that ataxia in juvenile tabes is conspicuous by its absence. This can readily be explained by the large number of patients that develop early optic atrophy. The absence of marked gait disturbance in the tabetic blind has been commented on by all writers on the subject and is emphasized by the following figures: In forty cases of tabetic optic atrophy in the young, 70.5 per cent. were without ataxia, in 20 per cent. there was slight ataxia, and in 9.5 per cent. pronounced ataxia. Crisis or girdle pains have not been observed at any time during the course of the affection in the young, nor have trophic phenomena been seen. Nonne reports one case in which there was a Charcot joint.

Thus it may be seen that juvenile tabes does present special features, a fact which was emphasized by Hildebrandt, Mendel and others, and to which Gordon so strongly objected. As far as the clinical symptomatology is concerned, this differs in no way from the adult type. Ernest Jones aptly remarks that no symptom occurs in juvenile tabes that has not been observed in adults. The prognosis is excellent for life but extremely bad for vision.

Diagnosis.—This should be a matter of simplicity if the case is subjected to a thorough neurologic study. Stephenson states that a diagnosis of tabes should be made in the young who present evidences of amblyopia and optic atrophy. In differentiating tabes from affections that simulate it, only cerebrospinal syphilis and Friedreich's hereditary ataxia need be considered seriously. That the latter, particularly, may cause confusion is evidenced by numerous writers: A careful study of the clinical symptomatology should easily separate the two affections. One does not find scoliosis, foot deformity, pyramidal signs, nystagmus, speech defects, etc., in tabes. Cerebrospinal syphilis presents a syndrome somewhat different from that of tabes and should be easy to recognize.

REPORT OF A TYPICAL CASE

In order to illustrate certain noteworthy characteristics of onset and clinical behavior, the history and clinical symptomatology of a typical case of juvenile tabes which recently came under observation is cited:

History.—A woman, aged 18, born in this country and not engaged in any occupation, was the second of five living children, the rest of whom showed no abnormalities of the neural

6. Cantonnet, H.: Les manifestations oculaires du tabes juvenile, Arch. d'ophth. 27: 708 (Nov.) 1907.

7. Hildebrandt: Ueber Tabes dorsalis in den Kinderjahren, Inaug. Diss., Berlin, 1892.

8. Raymond: Progr. méd. 32: 33 (Aug.) 1897.

9. Dydynski: Neurolog. Zentralbl. 19: 298, 1900.

10. Brasch: Berl. Ges. f. Psychiat. u. Nervenkrankh., Dec. 14, 1896.

11. Linser: München. med. Wchnschr., 1903, No. 15, p. 637.

12. Lasarew: Neurolog. Zentralbl. 19: 988-1047, 1905.

13. Malling, K.: Monatschr. f. Psychiat. u. Neurol. 28: 304, 1910.

14. Gordon, A.: New York & Philadelphia M. J., 1904, p. 872.

15. Mingazzini and Baschieri-Salvadori: Riv. di Patol. Nerv. e Ment. 11: 580, 1906.

apparatus, so far as could be determined. Both parents were living and in good health. The patient insisted that she did not suffer the usual diseases of childhood or any acute illness within recent years. This statement was corroborated by the fact that she finished a complete high school course with excellent rating. It may be of significance to mention that when the patient was 12 years old, pupillary inequality was noticed by a school physician, who advised her to wear glasses.

At the age of 15, subjective disturbances first developed. These were severe lancinating pains, the nature of which is best expressed in the patient's own words: "just like a needle and thread pulling through both legs." This was practically the only symptom, with slight remissions, that disturbed the patient over a period of two years. At no time during the period were there vesical or visceral disturbances. There were no gait anomalies. Paresthesias, variable in character, but always affecting the lower extremities, principally the toes, had manifested themselves in the last year. This symptom was followed by a disturbance in gait which had been present for the last nine months. At no period of the development of the malady were there any visual difficulties. According to the patient's statement she was not aware of any at present.

Examination.—There were no abnormal attitudes of the voluntary motor system. The gait was somewhat disturbed by an ataxia which was considerably increased in the performance of Fournier's tests. In the performance of coordinative efforts, both of the equilibratory and nonequilibratory type, some disturbance was noted. At times considerable ataxia manifested itself, and then again the tests were performed quite well. In the main, one would say that all coordinative activity was performed in a fairly creditable manner.

All skilled test acts showed no gross defects and were satisfactorily performed. There was no dysmetria or adiadokinesis.

The deep reflexes, both of the upper and of the lower extremities, were completely abolished. The superficial reflexes were present and equal. No pathologic reflex was elicited.

There were no abnormal involuntary movements, such as tremors, twitchings, athetoses, spasms or choreiform movements.

The muscle strength showed no gross defects, nor were any abnormal muscle changes noted. Hypertonicity and hypotonia likewise were absent.

There were no demonstrable abnormal associated movements.

The peripheral neural apparatus showed no pathologic alterations or impairment in its behavior.

The general sensory examination showed slightly diminished reactions for touch, pain, vibratory temperature, pressure and muscle-tendon sense. In the main the examination revealed satisfactory acuity in localization and discrimination.

Cranial Nerves: The pupils were fairly regular, markedly unequal, and did not react to light. Accommodative and consensual reactions likewise were abolished. The ciliospinal reflex was not elicited. The fundi oculi showed a narrowing of the larger vessels and an indistinctness of the smaller ones. The disk was grayish in appearance and showed distinct evidence of an early atrophy. The rest of the cranial nerves showed complete functional integrity. The systemic examination revealed a general deficiency in growth and development. The presence of hutchinsonian teeth had left its unmistakable imprint of hereditary syphilis. The blood Wassermann test was positive. The spinal fluid showed 130 cells per cubic millimeter, an increase in globulin, a positive Wassermann test, and a Lange colloidal gold reaction reading: 5544334555.

CONCLUSIONS

In the light of the facts that have been gathered concerning juvenile tabes, these conclusions seem justifiable:

1. Juvenile tabes may be considered a distinct clinical entity in view of the long accepted dictum that adults alone were subject to the disease. That the

creation of separate entities in a disease that affects both young and old may be justly criticized as being clinically confusing and scientifically unsound is not denied; but in view of the rarity of its occurrence and the special characteristics of the affection in the young, juvenile tabes is deserving of special recognition.

2. Juvenile tabes is the result of an hereditary syphilitic infection in the great majority of cases. An insignificant number of cases are due to syphilis acquired during infancy.

3. Its symptomatology differs in no way from that of the adult type, but special characteristics in its onset and course are worthy of note.

4. Early visual difficulties proceeding to blindness and optic atrophy are characteristic of fully 40 per cent. of the cases.

5. Lancinating pains, ataxia, and visceral or vesical disturbances affect only a small number.

6. Trophic disorders are absent.

7. Females are particularly vulnerable to the affection; as twice as many girls show the disease as boys. The ratio in the adult type is placed as ten men to one woman (Gowers).

8. The prognosis is excellent for life, but extremely poor for vision.

370 Central Park West.

RECTAL INJECTION OF MASSIVE DOSES OF NEO-ARSPHENAMIN *

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SAN FRANCISCO

Rectal injections of arsphenamin have been used by a number of clinicians with varying results. The French were the first to use this method, and French writers have been most enthusiastic in its advocacy. As early as 1912, Bogrow,¹ Mosion, Weill, Morel and Mouriquand² administered arsphenamin by rectum in suppositories and reported favorable results. The method was taken up and used for a time by several French clinicians, among whom were Dejerine, Balzar and Rajat; and, in the case of Rajat, at least, who reported 125 cases, favorable results were obtained. In view of the absence of subsequent reports from these men, it would appear that the method was dropped; but Brouhard,³ in 1913, recommended its use for children, and in 1914 Benoit⁴ used it extensively and formulated a technic for its administration by enema. As a result of his work he reached certain conclusions which were concurred in by Guiard. They were that the rectal method, as judged by the supreme criterion of the Wassermann test, was a satisfactory method of treatment and that in general it was less efficacious than the intravenous route, but that in simplicity and innocuousness it was far superior. He suggested that larger doses might be given by the rectal route but did not specify how large they might be. Azémar,⁵ in 1919, used the method in comparison with the intravenous method and tested its efficacy by determinations of the arsenic in

* This research was undertaken with financial assistance from the United States Government Interdepartmental Social Hygiene Board.

1. Bogrow, S. L.: Berl. klin. Wchnschr. 49: 108 (Jan. 15) 1912.

2. Weill, E.; Morel, A., and Mouriquand, G.: Bull. Soc. de pédiat. de Paris 14: 332 (Oct. 15) 1912.

3. Brouhard, quoted by Azémar (Footnote 5).

4. Benoit: J. de méd. de Paris, Jan. 24, 1914.

5. Azémar: Ann. de dermat. et syph. 7: 14, 1918-1919.

the urine excreted. He concluded that after rectal injection, the elimination of arsenic was not so great, so prolonged or so rapid as it was after intravenous injection. He also commended the method for its simplicity, and reported favorable clinical results.

Boyd and Joseph⁶ used the method in Panama and recommended its use for children. Schamberg⁷ stated

TABLE 1.—ARSENIC IN BLOOD AFTER INTRAVENOUS INJECTION OF ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Arsenic Mg. per Hundred C.c.
0.6	4	5 Minutes	0.97
0.6	4	15 "	.48
0.6	4	30 "	.18
0.6	4	1 Hour	.077
0.6	4	4 "	.030
0.6	4	12 "	.011
0.6	4	24 "	.009
0.6	4	48 "	.000

that in his opinion it was "an extremely feeble method of administering these drugs," and this opinion in substance was concurred in by Harrison.⁸ The British Medical Research Committee summed up the subject with the statement: "The general opinion of experienced workers is that the rectal method is ineffective, and in this view the committee concurs."

It is probable that the conclusion of the committee is correct with the dosage used. But there are certain advantages connected with the rectal method that would commend it highly if an effective dose could be administered in this way. In children, in those whose veins are small or destroyed, in those who react unduly to intravenous injection, and in extremely nervous individuals, it is highly desirable to find a method of administering arsenical drugs other than the intravenous one. It occurred to the author that perhaps the clinical failures by the intrarectal method might be due to the fact that the doses were too small. It is conceivable that, owing to faulty absorption or to fixation by feces, only a small part of the arsenic injected by the rectum ever reached the blood stream, and if this is true the remedy might be found in larger dosage.

The work was begun with ordinary doses, intravenously and intrarectally, and the absorption and distribution were checked by determination of arsenic in the blood, urine and spinal fluid after each method of administration. The dose by rectum was gradually increased until 4 gm. of neo-arsphenamin was given by this route. A total of 160 injections was given rectally before the maximum dose was reached, and 4 gm. of neo-arsphenamin has been used in 125 cases.

The technic used for the intravenous injection was the usual one. For the rectal injection the patients were given a brisk purge on the day preceding the treatment. Two hours before the treatment they were given a colonic flush until the washings returned clear. Simultaneously with the injection, tincture of opium or paregoric was given by mouth, or, in some cases, morphin by hypodermic injection.

The arsphenamin or neo-arsphenamin was dissolved and neutralized just as for intravenous injection. The volume for each dose was 100 c.c. This was retained twenty-four hours, if possible. Blood was taken and analyzed, and urine was collected at varying intervals after the injection. In a number of cases spinal fluid was also taken and analyzed for arsenic content.

A modified Marsh method was used for the quantitative arsenic determinations. These were made by Mr. P. S. Williams, working under the direction of Professor Swain of the Department of Chemistry of Stanford University.

To begin with and to obtain controls, a series of intravenous arsphenamin injections (with a dosage of 0.6 gm.) was given and blood was taken at intervals following the injections and analyzed for arsenic. A total of forty-one specimens of blood was taken and the average results of the determinations for each interval are shown in Table 1. The arsenic is expressed in milligrams per hundred cubic centimeters of blood.

It will be seen from this table that, as might have been expected, the largest amounts were found immediately after the injection. After thirty minutes the amount was about one fifth as great as after five minutes; traces were found after twenty-four hours, but only amounts too small to be detected by our methods were found in forty-eight hours.

A second series of determinations of arsenic in the blood was made after 4 gm. of neo-arsphenamin had been injected rectally. At this dose the occasional appearance of toxic symptoms, particularly vomiting, seemed to indicate that the upper limit of dosage had been reached, and accordingly larger doses were not

TABLE 2.—ARSENIC IN BLOOD AFTER RECTAL INJECTION OF NEO-ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval Hours	Arsenic Gm. per Hundred C.c.
4	4	1	0.0015
4	4	2	0.003
4	3	3	0.005
4	6	4	0.011
4	4	6	0.009
4	3	8	0.008
4	2	12	0.025
4	4	14	0.020
4	2	16	0.0065
4	1	18	0.006
4	9	24	0.008
4	2	36	0.0025
4	2	48	0.0025

attempted. But 125 rectal injections of 4 gm. were given and the arsenic content of the blood after these injections was determined forty-six times. The results of these determinations are shown in Table 2.

It will be seen that during one period from about the sixth to the fourteenth hour, the arsenic concentration in the blood equaled or exceeded that after the intravenous dose of arsphenamin (0.6 gm.); but at all

TABLE 3.—ARSENIC IN URINE AFTER INTRAVENOUS INJECTION OF 0.6 GM. OF ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Total Arsenic in Urine Mg.
0.6	12	1st 12 hours	0.787
0.6	5	2d "	0.772
0.6	5	3d "	0.688
0.6	5	4th "	0.651
0.6	4	5th "	1.190
0.6	3	6th "	0.578
0.6	4	7th "	0.284

times, even at the point of greatest concentration, the actual quantities of arsenic present were exceedingly small, and accurate determinations were, as a consequence, attended by great difficulty and some uncertainty.

Because of this fact, it was decided that a more practical method of judging the relative absorption would be to determine the larger quantities that were eliminated in the urine. A series of intravenous injec-

6. Boyd, A. S. and Joseph, Morris: Intrarectal Administration of Arsphenamin, *J. A. M. A.* 71: 521 (Aug. 17) 1918.

7. Schamberg, J. F.: *Therap. Gaz.* 43: 761 (Nov.) 1919.

8. Harrison, L. W.: *Quart. J. Med.* 10: 291 (July) 1917.

tions was given and the quantities of arsenic eliminated in twelve hour intervals after injections were determined. The results obtained in the urine after 0.6 gm. of arsphenamin intravenously appear in Table 3.

After 4 gm. of arsphenamin was injected rectally, urine was collected for the same periods as after the intravenous injections, and the arsenic content determined. The results of these determinations appear in Table 4.

TABLE 4.—ARSENIC IN URINE AFTER RECTAL INJECTION OF 4 GM. OF NEO-ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Total Arsenic in Urine Mg.
4	10	1st 12 hours	2.573
4	11	2d "	2.397
4	11	3d "	1.886
4	11	4th "	1.933
4	9	5th "	1.822
4	7	6th "	1.473
4	6	7th "	0.578

The curves of arsenic excretion after the intravenous and the intrarectal methods are plotted together on the same graph to the same scale and appear in the accompanying chart.

While the results are not strictly comparable, owing to the fact that arsphenamin was used for the intravenous and neo-arsphenamin for the intrarectal injections, it will be seen that when such doses as 4 gm. of neo-arsphenamin are injected rectally, approximately three times as much arsenic was excreted in the urine as after an ordinary intravenous injection. Azémar, using the same dose by each route, found a larger excretion after the intravenous injection. The larger amounts shown after the rectal injections in our series would seem to be adequately explained by the tremendous doses that were given.

As a corollary to the other work, a series of arsenic determinations in the spinal fluid was made after each method. The spinal fluid was always taken eight hours after the injection. The results are given in Table 5.

TABLE 5.—ARSENIC IN SPINAL FLUID

Dose Gm.	Number of Determinations	Interval	Arsenic Mg. per Hundred Cc.
0.6	20	Intravenous injection, arsphenamin 8 hours	0.003
4.0	17	Intrarectal injection, neo-arsphenamin 8 hours	0.0025

It will be seen that the amounts present in the spinal fluid are practically the same after either method.

The clinical results in our series are difficult to estimate. This is due to two factors: In the first place, the patients were almost all tabetics or cerebrospinal syphilitics, and the clinical improvement shown by such patients after any method of treatment is slow. Also most of these patients received other treatment at the same time. However, when the neo-arsphenamin injected rectally was used in full doses (i. e., 4 gm.),

improvement was at least as rapid as that formerly observed when the intravenous method was used, as judged by clinical manifestations, and more particularly by the clearing up of the Wassermann reaction and other reactions of the spinal fluid.

In the beginning of this work it was found that when we attempted to increase the rectal dose of arsphenamin, symptoms of rectal irritation appeared. For this reason, neo-arsphenamin was substituted and the doses run up to 4 gm. While arsphenamin was being used in the irritating doses, two patients reported that long standing cases of pruritus ani had been cured by the injection. The dose of 4 gm. of neo-arsphenamin was never repeated oftener than once in seven days, and the intervals were usually from ten to fourteen days. The only signs of toxicity observed after these doses were the occasional attacks of vomiting previously mentioned and puffiness under the eyes, which developed in two patients. Urine examinations were frequently made to detect possible damage to the kidneys. But several patients received seven of these large doses in a series without showing ill effects. The excretion of arsenic by other routes than the urine is being investigated.

At present, samples of bile are being collected by means of the duodenal tube, and the arsenic in it estimated.

CONCLUSIONS

1. Neo-arsphenamin can be safely given intrarectally, in doses as large as 4 gm.

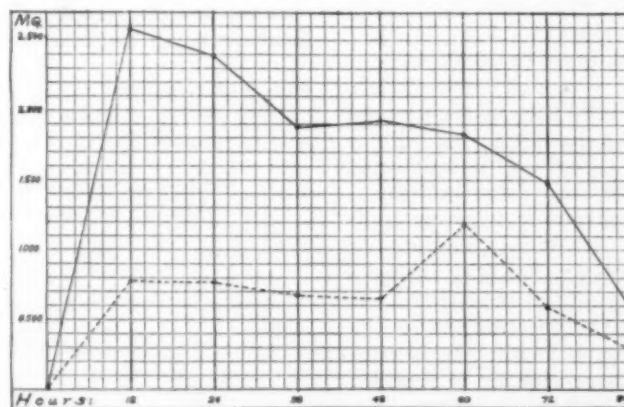
2. Arsenic is absorbed into the blood after such injections, and larger quantities are eliminated in the urine than after ordinary intravenous injections of arsphenamin.

3. Arsenic persists longer in the blood in perceptible quantities after the rectal method with large doses than after ordinary intravenous methods.

4. About equal concentrations in the spinal fluid are obtained with either method.

We believe that, all things being equal, the intravenous method of administering arsphenamin and neo-arsphenamin is still the method of choice in most cases. But, based on the foregoing conclusions, we feel that the rectal administration of neo-arsphenamin has a place in therapy when massive doses are used, especially in the cases of children, those with difficult or impossible veins, and in the case of those in whom, for any reason, intravenous injections are dangerous or undesirable.

Hospital Social Service.—The basis of hospital social service is its relation to the medical care of the patient. The restoration and maintenance of health depend in many instances not only on accurate diagnosis and direct medical treatment of pathologic conditions of the body, but also on dealing with the patient's personality, and on the alteration or adjustment of his home conditions, occupations, habits and community relations. Social treatment must have as its aim the promotion or accomplishment of the doctor's plan of treatment—a plan that has taken into consideration the personal and environmental elements as well as the medical.—*Hospital Social Service* 3:2, 1921.



Arsenic in urine: solid line, after rectal injection of 4 gm. of neo-arsphenamin; broken line, after intravenous injection of 0.6 gm. of arsphenamin.

SAFETY-PINS IN THE STOMACH

PERORAL GASTROSCOPIC REMOVAL WITHOUT ANESTHESIA

CHEVALIER JACKSON, M.D.

ASSISTED BY

WILLIAM H. SPENCER, M.D.

PHILADELPHIA

Foreign bodies that have reached the stomach spontaneously without instrumental interference will usually pass the pylorus spontaneously. The exceptions are in cases of an abnormally small pylorus or of foreign bodies of unusual character as to size or shape. Most of the cases occur in infants and very young children, in whom it is not always certain that the pylorus is normal in size. However, our usual custom in the Bronchoscopic Clinic not to interfere with foreign bodies in the stomach until after a month or two of fluoroscopic watching has almost invariably been justified by the natural passage of the foreign bodies, even open safety-pins, by the rectum, usually within three days. The two cases reported herewith are important exceptions. It was not possible to determine whether or not the pylorus in either case was a fair average normal in size; but there were no clinical evidences of stenosis.

CASE 1.—Two safety-pins removed from the stomach of a 6 months infant by gastroscopy, after a sojourn of twenty-seven days.—A boy, aged 6 months, while lying on the bed, placed in its mouth two safety-pins, each 2 inches long, which had been linked together closed. The mother later found the infant choking and endeavoring to vomit, which symptoms, however, soon disappeared, the baby appearing as well as before. The family physician, Dr. G. F. Enoch, was con-



Fig. 1 (Case 1).—Two closed safety-pins, linked and entangled together, in the stomach of an infant, aged 6 months. After a wait of nearly a month for them to pass they were removed, bloodlessly, through the mouth by gastroscopy without anesthesia, general or local. The roentgenogram (by Dr. Willis F. Manges) is taken from the back; the pins are to the left side of the spine, and occupying almost the full width of the infant's stomach.

sulted and advised a roentgenogram, which being taken by Dr. William H. Morrison, showed the pins at the cardiac end of the stomach. No symptoms of any kind were present at any time and the pins were noted by frequent roentgenographic studies to remain in the same position. Dr. Willis F. Manges finally decided that the pins were too large to pass the pylorus, and that even if that orifice were passed, the pins, because of their length, would not take the turns in the intestine without lodging and creating intestinal

obstruction. A glance at Figure 1 will show the enormous size of the pins relatively to the size of the infant.

A watchful waiting of almost four weeks having corroborated Dr. Manges' opinion that the pins could not pass, gastroscopy without anesthesia or sedatives was performed in Jefferson Hospital. The pins were found wrapped in folds of the stomach wall, and both the walls and the pins were in constant motion. There were many opportunities to seize the pins during the course of the gastroscopy, but each time it was an unfavorable portion that presented itself. I had decided on one of the keepers as the most favorable part of the double foreign body to seize, and it required the full time (twenty-six minutes) to get the pins turned so that one of them would present the keeper end for traction. Drawing gently on this one end, the second pin formed a second link to the chain during withdrawal. Great care was required in getting the keeper end of the second pin through the hiatus

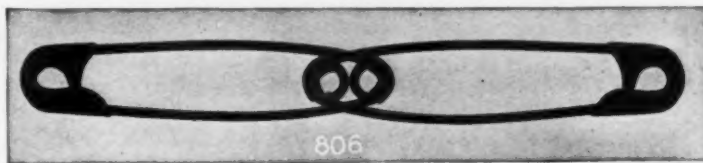


Fig. 2 (Case 1).—The two safety-pins, linked together (compare Fig. 1). Removal required disentanglement and seizure by one end only. Illustration is actual size.

and later past the cricoid. The pins caused no trauma in their removal.

The baby seemed none the worse for the rather trying procedure, and fell asleep immediately. No reaction followed the gastroscopy, and the swallowing function continued normally. After a good sleep, the baby laughed and played as if nothing had happened and, the day after the gastroscopy, was taken home. Later reports stated that the child remained perfectly normal.

Ordinarily, a closed safety-pin in the stomach is practically certain to pass out by rectum. Dozens of such cases have come to the Bronchoscopic Clinic. They are watched daily with the fluoroscope, and the time of escape from the stools is noted. Rarely is longer than three days required. The peculiarity about the present case is that the enormous size of the two safety-pins, clamped together as they were all the time they were in the stomach, as shown by the repeated fluoroscopic studies of Dr. Manges, made it impossible for them to escape through the pylorus. Whether the pylorus was smaller than normal, or whether the pins entered the stomach extended in a chain as shown in Figure 2, are interesting questions. Dr. Manges felt sure in the beginning that the pins could not pass, and, if they did, that their length would prevent their making the turns necessary to pass through to the rectum. It is to be assumed that the pins were swallowed as successive links in a chain; for when grasped in their clamped together position as they lay in the stomach, they were too large to come through the hiatus esophageus (no resistance was felt at the cardia) without stronger traction having to be exerted than was deemed safe. It was not until the pins were disentangled and one keeper alone was grasped that the foreign body could be drawn into the esophagus through the hiatus.

CASE 2.—Open safety-pin in stomach for seven weeks; regurgitated into esophagus, and removed by esophagoscopy.—A 12 month old daughter of an officer overseas was referred with the history that eight weeks before admission she had swallowed an open safety-pin, 1 inch long, which she had placed unnoticed in the mouth while being dressed. A roentgenogram at that time by Dr. J. F. Armentrout (Fig. 3) showed the pin at the cardiac end of the stomach. No symp-

toms arose, and frequent fluoroscopic examinations showed the pin still in the stomach, where it remained for seven weeks. At the end of this time a vomiting attack caused the pin to regurgitate into the lower esophagus, point downward, where it was located roentgenographically by Dr. Armentrout. A second attack of vomiting carried the pin to a higher position, where it remained. Fever, restlessness and

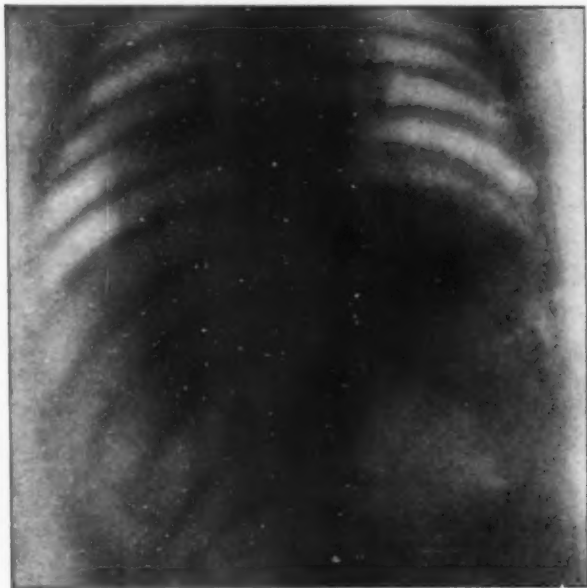


Fig. 3 (Case 2).—Open safety-pin in stomach of an infant, aged 12 months, which after seven weeks was regurgitated into the esophagus, as shown in Figure 5. The shadow of the pin has been strengthened for illustrative reproduction. (Roentgenogram by Dr. J. F. Armentrout.)

attacks of vomiting developed, and one week later Dr. Stuart MacGuire was consulted, who at once advised that the child be sent to me. She was admitted to Jefferson Hospital, very ill, with temperature elevation of 105.8 F. There was no apparent dysphagia or odynphagia. Except for a mild bronchitis, physical examination of the chest revealed nothing abnormal.

Dr. Willis F. Manges, who made a roentgen-ray examination, reported that there was an open safety-pin, open end down, in the esophagus below the level of the bifurcation of the trachea. The point was forward and slightly to the left. The safety-pin was about 1 inch in length. The ring end of the safety-pin was at the level of the sixth rib posteriorly (Figs. 4 and 5).

Esophagoscopic removal of the pin was effected without anesthesia, general or local, and required fifty-nine seconds. The thoracic esophagus was observed to be closed, and failed to dilate during inspiration. The pointed branch of the safety-pin was buried up to the spring in the anterior wall of the esophagus, the curled spring and spring-cap being visible. The point was directed toward the pericardium, so that the slightest push on the pin would have been serious. The spring was seized with forceps and the pin drawn into the esophagoscope and thus removed.

Within a few hours after the removal of the foreign body the temperature, which at the time of operation was 105.8, fell to 99, rose to 102 on the following day, and then dropped to normal. The general condition immediately improved; the vomiting ceased. The child left the hospital well three days after the esophagoscopic removal of the pin, and is reported to be in continued good health.

This case is unusual from many points of view. Foreign bodies, even open safety-pins, pass the pylorus and are expelled by rectum in most cases in which they have entered the stomach spontaneously; i. e., they are not pushed through the hiatus esophageus. Even when they remain in the stomach for a long time we rarely encounter regurgitation of foreign bodies

into the esophagus. Retention of objects in the stomach for weeks is not uncommon, and they may usually be let alone for a considerable time unless there are symptoms of perforation; although, it seems needless to say, they should be watched at frequent intervals with the fluoroscope, as was this case, and every stool should be searched in the interim. Immediate roentgenographic localization of the foreign body should be the procedure in all such cases, and especial commendation is due the physicians in charge for their careful study of the baby and watchfulness over it. The wait of seven weeks was fully justified. In such cases we have advised waiting even as long as two months, in the absence of symptoms. The absence of any symptoms while the foreign body remained in the stomach is quite usual; it was only after the regurgitation of the pin into the esophagus that disturbances arose. The upward movement of the pin after it had entered the esophagus illustrates the ratchet-like action of pointed objects, especially safety-pins, because of their spring. They are free to be moved in a direction away from the pointed end, but progress in the opposite direction is prevented by the point catching in the mucosa. The severe symptoms were due undoubtedly to the perforation of the esophageal wall by the pin; mediastinal emphysema and inflammation were endoscopically evidenced by the fixation of the thoracic esophagus and its failure to dilate during inspiration. The hyperpyrexia (105.8 F.) indicated an infective process, but the rapid fall in temperature after the removal of the pin would seem to indicate that pus had not formed. Recovery from such a condition is exceedingly rare. To some extent the irritation of the pin itself may have been a factor in the production of the grave syndrome. The position of the pin rendered manipulation

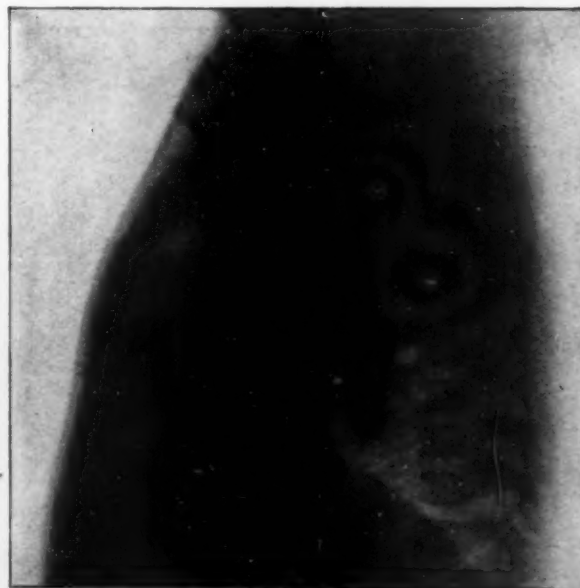


Fig. 4 (Case 2).—Safety-pin in the esophagus, into which it had been regurgitated after a seven weeks' sojourn in the stomach as shown in Figure 3. Removed from esophagus by esophagoscopy through the mouth without anesthesia, general or local. (Roentgenogram by Dr. Willis F. Manges.)

exceedingly dangerous, and emphasizes the importance of the introduction of the esophagoscope under the direct guidance of the eye; for with the esophagoscope inserted with the aid of a mandrin or by other blind instrumentation, the pointed end of the pin would

probably have been forced into some of the vital mediastinal structures. The wall of the esophagus is exceedingly thin and delicate, which renders the removal of a safety-pin, even with the esophagoscope, a procedure requiring skill and experience.

There was no clinical evidence that the pylorus was of less than a fair average normal size.

Included in the following conclusions are a few deductions from experience in other cases at the Bronchoscopic Clinic.

CONCLUSIONS

1. In most cases, foreign bodies that have reached the stomach spontaneously (i. e., without being pushed down) will pass out harmlessly through the intestinal tract.

2. There are a sufficient number of exceptions to this rule to render imperative the necessity of watching the foreign body by a skilled fluoroscopist at frequent intervals until the intruder is recovered from the stools.

3. During the watchful waiting period, no change from the usual diet should be made and laxatives should not be given.

4. There are a number of cases in which an open safety-pin has passed by rectum; but in view of the cases herein reported, removal from the stomach is advisable in two classes of cases:

(a) those in which the pin is of such large size relatively to the patient that the opinion that it will not pass is warranted, and (b) those in which a watchful waiting period of a number of weeks, say three to eight, has demonstrated that the foreign body is unlikely to pass.

5. Regurgitation of a foreign body from the stomach is so exceedingly rare that it is not to be waited for.

6. The safest and best method of removal of foreign bodies from the stomach is by peroral gastroscopy, provided an experienced endoscopist is available. Otherwise, external operation by a skilful surgeon is safer and more successful. No



Fig. 5 (Case 2).—Safety-pin regurgitated into the esophagus after seven weeks' sojourn in stomach. Illustration is actual size.

anesthetic, general or local, is required for gastroscopy. In the case of a large number of foreign bodies in the stomach of the insane, probably external operation is a preferable method of removal.

7. The aid of the highest skill of the best roentgenologist is imperative in the study of these cases.

8. According to the experience of the Bronchoscopic Clinic, the foregoing principles apply to foreign bodies other than safety-pins.

Dangers of Whooping Cough.—The general public does not realize the importance of exercising the greatest possible care in dealing with whooping cough, especially when it affects children of tender years. When it is borne in mind that 40 per cent. of the deaths from this cause occur in the first year of life, constant advice and instruction should be given to all mothers attending infant welfare centers, on matters of prevention, and on the nursing and care of children suffering from this disease. It is important also that the homes of children suffering from whooping cough should be visited as is done in the case of measles, and advice given to the mothers to enable them to prevent, as far as possible, the onset of those pulmonary complications which so frequently lead to a fatal termination.—*Med. Officer* 24:220, 1920.

HEREDITARY MULTIPLE CARTILAGINOUS EXOSTOSES

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During the last few years, numerous cases of multiple cartilaginous exostoses have been reported, and many excellent studies of the disease have been made, including studies of the calcium and magnesium metab-

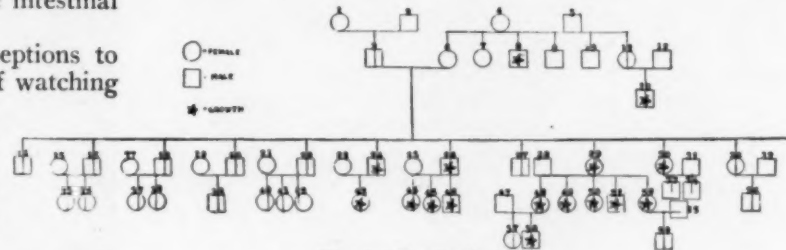


Fig. 1.—Family line.

olism in both early and late cases. It is our purpose here to report a rather unusual family group showing the hereditary factor which this disease usually presents.

That the hereditary factor is a strong one is borne out by the literature. Heymann¹ reports the history of a family, eight members of which (in three generations) bore growths. Drescher² reports a case in which the father, several brothers and a sister showed well



Fig. 2 (Case 46).—Lateral view of right knee.

marked exostoses; the patient, a woman, aged 30, died in childbirth, and the newly born child showed prominent exostoses on the right humerus. Fisher reports

1. Heymann, R.: Ein Beitrag zur heredität seltenerer Geschwulstformen multiplen cartilaginäre Exostosen, *Arch. F. Path. Anat. u. Physiol.* 104: 145, 1886.

2. Drescher, Adolf: Zur Casuistik der hereditären multiplen Exostosen, Thesis, Giessen, 1889.

five families in which there were exostoses. Maclean³ reports six cases in one family, the father, daughter, three sons and a paternal aunt being affected. Weber, Carman and Fisher,⁴ Mosenthin,⁵ Gorsline,⁶ Davis, Cox,⁷ Dwyer⁸ and many others have reported similar cases. In thirteen of thirty-three cases a positive history of heredity was obtained, the disease having occurred in some member or members of the patient's family.

It is rather interesting to note that in few of the cases were the growths noted at birth. In sixty-six reported cases only one case shows growths at birth. In twelve cases they were noted between birth and 5 years of age; in seven, between 5 and 10; in four between 10 and 15; in two between 15 and 20, and in only one case were they observed after the twentieth year. In the remaining cases no definite information was given as to the age at which the growths were discovered.

There seems to be in all cases reported a fairly large predominance of males over females affected. In the sixty-six cases reported, forty-seven were in males and only sixteen in females. In the present series there were seven males and nine females. No inference may be drawn from this, however, as the entire family was not examined.

The family tree, represented by Figure 1, began in Germany of pure German descent. The history of the early family is rather meager, and when any question as to the presence or absence of growth has come up the case has been treated as one without the exostoses. In Case 6, a woman of approximately 70 did not show growths at any time, so far as known, this instance rather supporting Ehrenfried's view that the disease



Fig. 3 (Case 43).—Changes in wrist; disproportion and change in size of metacarpals and phalanges.

can be transmitted by an unaffected mother. The woman, however, was not roentgenographed, and the

growths could not be ruled out merely on physical examination.

Figure 2 is a roentgenogram of the right knee of a boy, aged 16 (Case 46), showing the typical exostosis and bone changes.

Figure 3 presents the changes in the wrist and the disproportion and change in the size of the metacarpals and phalanges in a girl, aged 13 (Case 43).



Fig. 4 (Case 24).—Anteroposterior and lateral views of right knee.

Figure 4 is a roentgenogram of the right knee of a man, aged 37 (Case 24), in which the small growth but great enlargement in the size of the femur may be noted.

Exostoses were present at birth in Cases 43, 44, 45, 46, 49, 50 and 51. No roentgenogram was taken in Case 58, in which the subject was an infant.

The family line is an extremely healthy one and there is no history of any systemic disease, such as rickets, syphilis or tuberculosis. This does not support the views of Volkmann, Herbst, Richter and many others that exostoses are due to rickets, or the views of Lortat-Jacob, Aubourg, Brun, Lejars and Heymann, who conclude that "tuberculosis plays an important rôle in the production of congenital osteogenic exostosis." Curtillet⁹ also maintains that tuberculosis plays a large part in the production of exostosis, while Pissavy has found tuberculosis in great numbers of cases of exostosis.

Von Bergman¹⁰ believes that the exostoses arise in abnormal anlagen in the intermediary cartilage, and Pels-Leusden¹¹ contends that this abnormal anlage is always present at birth but may be too small to be observed at this early period, except on pathologic examination.

For a more careful detailed study of all the aspects of the disease the reader is referred to articles by

3. Maclean, E. J.: Multiple Cancellous Exostoses, *Brit. M. Chir. J.* 5: 217, 1890.

4. Carman, R. D., and Fisher, A. O.: Multiple Congenital Osteochondromata, *Ann. Surg.* 61: 142, 1915.

5. Mosenthin, H.: Seltene Komplikationen der multiplen kartilaginären Exostosen, *Deutsch. Ztschr. f. Chir.* 128: 241, 1914.

6. Gorsline, C. S.: Familial Deforming Chondrodysplasia, Multiple Cartilaginous Exostoses, *Am. J. Roentgenol.* 6: 271 (June) 1919.

7. Cox, Robert: Notes on a Case of Multiple Exostosis, with Hereditary History, *Lancet* 2: 701, 1915.

8. Dwyer, H. L.: Chondrodysplasia: Multiple Cartilaginous Exostoses, *Am. J. Dis. Child.* 10: 189 (March) 1920.

9. Curtillet, J.: Quatre cas d'exostoses, du rôle probable des tox-infections dans la production des exostoses ostéogéniques, *Rev. d'orthop.* 3: 193, 1912.

10. Von Bergman: *Frei Vereinig. d. Chir. Berlins*, March 13, 1905, cited by Lenormand, A., and Lecène, P.: *Rev. d'orthop.* 7: 203, 1906.

11. Pels-Leusden, F.: Klinische und radiologische Studien über Exostosis cartilaginea multiplex, *Ztschr. f. Chir.* 86: 434, 1907.

Honeij,¹² Ehrenfried¹³ and Underhill, Honeij and Bogert.¹⁴

SUMMARY

1. The disease shows a marked hereditary factor.
2. It is transmitted by male or female.
3. It is probably present at birth or before birth.
4. There is little evidence that infection plays any part.
5. All cases should have roentgenographic examination before the absence of growths is considered to have been proved.

DISCERNMENT OF INTRATHORACIC NEOPLASMS BY AID OF DIAGNOSTIC PNEUMOTHORAX

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The diagnosis of intrathoracic neoplasms has been considered very difficult; most of the cases are recognized only at necropsy. The reasons are clear: During the early stages, when the tumor is small, it produces only slight symptoms, and the signs elicited on physical exploration of the chest are very indefinite. The similarity of the symptoms and signs with those of early pulmonary tuberculosis is responsible for the fact that most of these patients are treated for tuberculosis, often till the end. In about 50 per cent. of cases pleural effusions (serous, sanguineous or purulent) take place and the diagnosis is then rendered even more difficult. Others expectorate fetid sputum, have fever, and a diagnosis of abscess of the lung, pleural vomica, etc. is made.



Fig. 1.—Neoplasm in right side of the chest with pleural effusion: A, tumor; B, effusion, which obscures the neoplasm.

Roentgenography is in many cases of immense assistance, but in others it is of slight value and, like the history, symptomatology and physical signs, can prove merely suggestive. When the tumor is small either it is altogether invisible on the plate, or when it does cast

a shadow, this is often not unlike that cast by a tuberculous lesion of the lung. In many cases the differentiation of these shadows is extremely difficult. When an effusion takes place, the entire half of the affected side of the chest is obscured by a dense homogeneous shadow, and the roentgenographer reports merely "pleural effusion." Many of this type of cases have come under my attention.

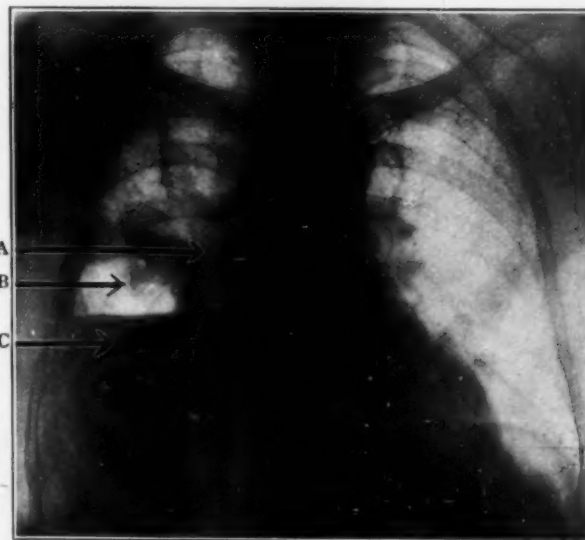


Fig. 2.—Same chest after a pneumothorax was induced: A, the tumor clearly differentiated; B, air in the pleural cavity; C, effusion.

While tapping a pleural effusion secondary to carcinoma of the lung, an intern at the Montefiore Hospital accidentally injured the visceral pleura and thus a pneumothorax resulted. A roentgenogram taken of this chest showed clearly a hydropneumothorax of the right side, and a tumor adjoining the mediastinum (Figs. 1 and 2). This accidental observation gave me the idea to utilize diagnostic pneumothorax for the purpose of discernment of intrathoracic neoplasms along the lines of pneumoperitoneum, used in intra-abdominal conditions. Carefully searching the literature, however, I found that this method had already been suggested by Brauer,¹ and attempted by Schroeder.² But it appears from the roentgenograms published by Schroeder that his success with this method was rather limited. It thus appears that the accompanying roentgenograms of diagnostic pneumothorax for intrathoracic neoplasms are the first that show the tumors clearly.

In cases in which there is no pleural effusions, the technic is simple. We employ the usual technic of artificial pneumothorax, injecting several hundred cubic centimeters of nitrogen or air into the pleural cavity, using any of the standard apparatus and a manometer for the purpose. When the lung is collapsed, the solid tumor is clearly seen on the plate. In those in whom an effusion has occurred and it is suspected that it is secondary to a neoplasm, the fluid is first withdrawn with a Potain apparatus. The pneumothorax apparatus may then be connected with the needle which is already in the chest, and the air allowed to flow in. In cases in which the fluid is purulent, and this is not at all rare in neoplasms of the lung and

12. Honeij, J. A.: A Study of Multiple Cartilaginous Exostosis, *Arch. Int. Med.* **25**: 584-627 (June) 1920.

13. Ehrenfried, Albert: Hereditary Deforming Chondrodysplasia—Multiple Cartilaginous Exostoses, *J. A. M. A.* **68**: 502 (Feb. 17) 1917.

14. Underhill, Honeij and Bogert: Studies of Calcium and Magnesium Metabolism in Disease, *J. Exper. Med.* **32**: 65-68 (July) 1920.

1. Brauer, L.: *Aerztl. Verein zu Hamburg, Session of May 7, 1912, München. med. Wchnschr.* **59**: 1192, 1912.

2. Schroeder, G.: *Internat. Centralbl. f. d. ges. Tuberk. Forsch.* **10**: 354, 1916.

pleura, the needle used for tapping is withdrawn and an ordinary pneumothorax needle is inserted. The amount of gas allowed to flow into the pleura varies in accordance with the condition of the patient and the pressure read on the manometer. If the patient is comfortable, as much as 1,000 c.c. of air may be allowed to enter the pleural cavity. If he suffers from severe

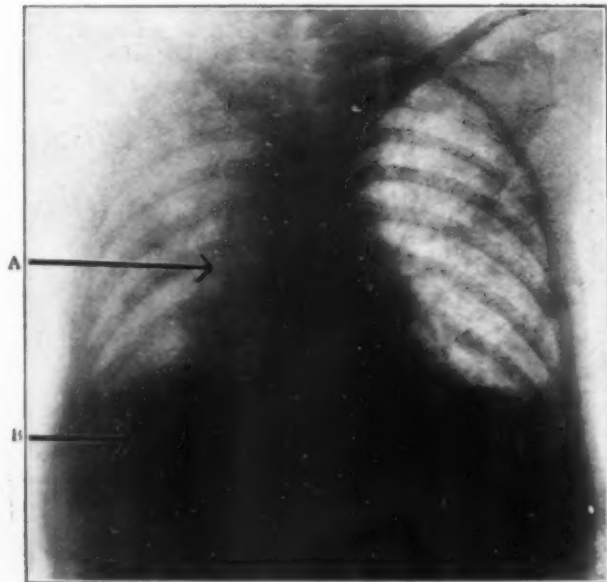


Fig. 3 (Case 3).—Large carcinoma in right lung; carcinomatosis all over left lung; effusion obscuring the tumor; picture almost typical of miliary tuberculosis with pleural effusion in right side: A, tumor; B, effusion.

pain or dyspnea, less is injected. In our clinic we always stopped when the positive pressure registered in the manometer reached 10 c.c. of water.

Immediately after the pneumothorax has been induced, the patient is examined fluoroscopically, and one or two roentgenograms are made. It is important that the plates should be taken with the patient in the erect posture; otherwise the fluid within the chest, which is shifting, will spread out all over the pleural cavity and mar the picture.

REPORT OF CASES

Some of the cases in which roentgenograms were taken at the Montefiore Hospital will prove of interest:

CASE 1.—B. K., a man, aged 56, had primary carcinoma of the right lung which invaded the anterior portions of the second and third ribs anteriorly. The right chest was filled with fluid in which large cells resembling alveolar epithelial cells, and also many polymorphous lymphocytes were found microscopically. No micro-organisms could be found in the fluid. Sept. 9, 1920, some pale, straw-colored fluid was withdrawn from the chest with a Potain apparatus, and 500 c.c. of air injected immediately. In the roentgenogram the air within the pleura was plainly visible in the lower half of the right chest near the axilla, while the tumor, which filled more than four fifths of the right half of the thorax, produced a dense, homogeneous shadow. It could not now be mistaken for fluid, and the pleurisy in this case was thus shown to be secondary to an intrathoracic neoplasm.

CASE 2.—B. E., a man, aged 50, had primary papilloma of the left lung, subsequently verified by necropsy. There was no fluid in the chest. With a pneumothorax apparatus, 600 c.c. of air was injected into the pleural cavity and a roentgenogram taken immediately. This disclosed the pneumothorax in the left chest very clearly, while the tumor adjoining the mediastinum was clear-cut and unmistakable.

CASE 3.—E. P., a woman, aged 42, had primary carcinoma of the right lung, subsequently verified by necropsy. As will be seen from Figure 3, roentgenography could detect with certainty only an effusion into the right pleural cavity. The mottlings all over both lungs fields were not unlike those produced by miliary tuberculous lesions. In fact, several experienced in reading plates have diagnosed miliary tuberculosis of both lungs with an effusion into the left pleura. Nov. 16, 1920, 500 c.c. of slightly turbid fluid was withdrawn from the right pleura; November 18, another 300 c.c. of fluid was withdrawn. Microscopically, lymphocytes and endothelial cells were found. A section of the sediment of the fluid also revealed tumor cells. The details of these cases will be reported later on.

Immediately after the second tapping, the needle used for withdrawing the fluid was connected with a pneumothorax apparatus and 650 c.c. of air was allowed to flow into the pleural cavity, till a positive pressure of 10 c.c. of water was registered on the manometer. The roentgenogram (Fig. 4) taken immediately after the pneumothorax was induced shows the right pleural cavity filled with air, the lung collapsed near the mediastinum; and two tumor masses, one extending from the second to the third interspace, and the other from the fourth to the sixth interspace can be made out very clearly. Necropsy performed December 25, confirmed these findings. The mottling all over both lung areas is thus shown not to be miliary tuberculosis, as would be thought at first sight, but miliary carcinomatosis.

COMMENT

In view of the harmlessness of the procedure, it appears that it should be utilized for diagnostic purposes in all doubtful cases. While most tumors can be diagnosed merely by a careful study of the history and physical signs of the cases, as will be shown in a later communication, this procedure of diagnostic pneumothorax will in many cases, especially those with pleural effusions, clear up the diagnosis promptly and

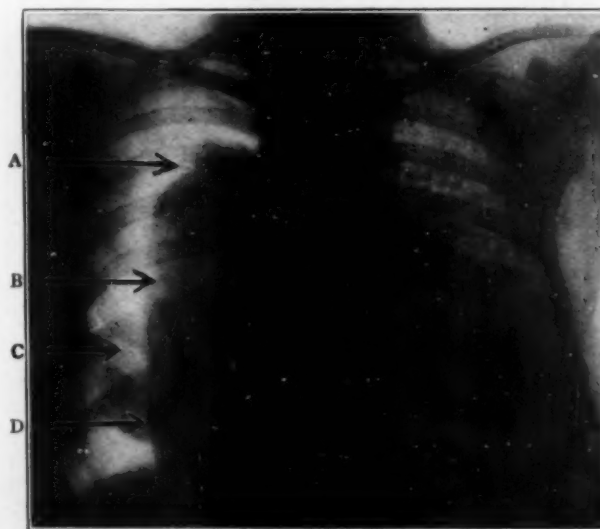


Fig. 4 (Case 3).—Appearance after fluid had been withdrawn and air substituted: A, D, tumor masses; C, pneumothorax; B, collapsed lung.

decisively. It is doubtful whether it is advisable to induce a pneumothorax in cases with aneurysm.

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Psychology of Physical Diagnosis.—In the psychology of physical diagnosis nothing is more certain than that our apprehension of a patient's condition depends not on what we know of physical signs but on what we consciously apply to the subject under investigation.—H. Sewell, *Am. Rev. Tuberc.* 4:824, 1921.

ALEUKEMIC LEUKEMIA WITH UNUSUAL SKIN MANIFESTATIONS

REPORT OF CASE

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When no definite leukocytosis is present, it is difficult to establish a diagnosis of leukemia, for most of our clinical knowledge and much of the pathology are based on that particular fact. That the disease may exist and can be recognized even though leukocytosis is absent is evident from the fairly frequent number of case reports in which the number of leukocytes was found at some time to be normal, and from the less frequent reports in which no abnormal leukocyte count was found at all.

Whether the disease may run its entire course with never a leukocytosis is another matter; but that the leukocyte count varies tremendously and may come to normal during a course of treatment or even without treatment is a common observation. Infections, which are a common complication in leukemia, affect the leukocytes usually to diminish their numbers. Cabot,¹ writing in Osler's Modern Medicine, says:

Next to pyogenic infections, tuberculosis is probably the most common complication. The miliary form is most often seen, but ordinary chronic pulmonary tuberculosis also occurs, Pneumonia not infrequently occurs, and like other infections may bring about a temporary amelioration in all symptoms. As a rule these complications produce a rapid fall in the number of white cells.

From the records of Lakeside Hospital up to December, 1920, out of fifty-two leukemia cases six were found at some time during observation with a normal leukocyte count, and three of the six were never seen with an abnormal leukocyte count. King² reports from the Johns Hopkins Hospital that in 1917, from a total of 105 cases, fourteen showed no leukocytosis at some time while under observation.

In the great majority of cases the diagnosis must depend on finding an abnormal leukocyte count at some time in the course of the disease.

Skin lesions in the leukemias are fairly common, especially in the late stage when the disease becomes hemorrhagic and petechiae appear. Many other lesions have been described—none so frequent or so characteristic as petechiae—but they are all said to be of a common pathology, and when studied in section should be very useful in the diagnosis of leukemia.

Ordway and Gorham³ say:

There is a remarkable tendency to a great variety of skin lesions in lymphatic leukemia. These may occur in all types of the disease. Sections of such lesions will constantly show a lymphocytic infiltration of the leukemic type.

Hazen,⁴ in 1911, summarized the literature on the skin lesions in leukemia, reporting that pruritus, prurigo, urticaria, bronzing, vesicles, pustules, localized infiltrations, nodules and tumors have been described. At that time forty-two cases had been reported describing other lesions than petechiae—chiefly eruptions and nodules.

Numerous other writers emphasize the importance of skin lesions in the diagnosis of leukemia.

The case here presented is one of lymphatic leukemia in which no abnormal leukocyte count was observed, and skin lesions were the most conspicuous symptoms of the disease.

REPORT OF CASE

History.—A man, admitted to Lakeside Hospital, Oct. 18, 1920, had been under observation by Dr. John Calhoun of Lisbon, Ohio, about nine months, during the early part of which period he was ill with influenza and pleuropneumonia, and was kept in bed four weeks. He was unable to return to his duties as locomotive fireman until four months later, principally on account of weakness, and then he worked only for a few days at a time until six weeks before his admission, when he went to bed again on account of weakness and soreness in his muscles and peculiar red spots on his chest. He developed a slight fever with this illness, and was sent to a hospital nearby for observation. During this hospitalization no diagnosis was established. Blood cultures had



Fig. 1.—Appearance of patient.

been negative and the blood Wassermann test negative. He was taken home and remained in bed at home, showing much the same general condition, except that crops of spots would appear and disappear at various places on his body.

Examination.—The patient, when admitted, was able to furnish a very clear history, and from the information he gave we were under the impression that he had been suspected of having syphilis and had been treated for it. When first examined at Lakeside, he was considerably emaciated and quite weak. The entire surface of his body (Fig. 1), including his scalp, the soles of his feet and the palms of his hands, was covered with very striking skin lesions. These were of various kinds and shapes, ranging from miliary points to patches more than 5 cm. in diameter. The majority of them were purple, hemorrhagic in appearance, and slightly elevated, thick and firm. Some of the lesions showed only extreme reddening, while in others there was a purple that had faded to a brown. Some of them were desquamated with a brown, dry scale, while others had superficial layers elevated by a sticky layer of creamy pus. None were deeply ulcerated, and all showed varying stages and degrees of infiltration and hemorrhage. In particular, no single lesion could be said to be a simple purpura unaccompanied by infiltration. The membranes of the mouth and conjunctivae showed the same lesions, but here superficial ulceration, complicated by secondary infection and encrusting, was more marked. The superficial lymph nodes were slightly enlarged.

1. Cabot, R. C., in Osler's Modern Medicine 4: 664, 1908.
2. King, J. T., Jr.: Bull. Johns Hopkins Hosp. 28: 114 (March) 1917.
3. Ordway, Thomas, and Gorham, Whittington, in Oxford System 3: 703 1920.

4. Hazen, H. H.: J. Cutan. Dis. 29: 521, 1911

The right pupil was fixed, the iris turbid in appearance and ragged in outline, showing the effects of a recent iritis. The left pupil showed a very active iritis with flecks of exudation at the margins of the pupil, with considerable turbidity of the iris and a sluggish reaction. The teeth were carious and the mouth foul. The chest moved fairly well in respiratory excursion, but the right side was smaller and its movements somewhat restricted in the lower portions. There was considerable dullness at the right base laterally and posteriorly, with coarse and fine râles over the dullness. There was nothing unusual to be found about the heart and blood vessels. The abdomen was scaphoid. The liver was enlarged in all the dimensions, being about 5 cm. below the costal margin. It was slightly increased in consistency, but the edge was smooth and a bit tender. The spleen was enlarged and about 5 cm. below the costal margin, with an edge that was blunt and freely movable. No notch could be felt. The scrotum was swollen and tender, being about 15 cm. in diameter. There were hard, irregular nodules representing enlarged epididymes, but the rest of the swelling was made up of double hydrocele. The knee jerks and ankle jerks were absent. The abdominal reflexes were present. The eye grounds were normal.

The blood examination revealed 6,404,000 red cells; hemoglobin, 80 per cent.; white count, 7,200, and bleeding time, increased. The blood clotted promptly.

The blood Wassermann test was negative. The urine showed a faint trace of albumin. Blood cultures were made, which grew out with a fairly liberal growth of *Staphylococcus albus*. In a few days there developed a rise of temperature ranging from 103 to 99, with no constant variation. The pulse corresponded to the temperature, and averaged about 100, with respiration in proportion.

On account of the fever and positive blood cultures, the patient was thought to have septicemia with unusual skin manifestations, purpuric in character. With the information that he had been treated for syphilis, several consultants proposed that the skin eruption was due to mercury and potassium iodid; but subsequent information from his physician disproved that diagnosis. Another diagnosis proposed was a hemorrhagic form of typhoid, but the chronicity of the disease and a negative Widal test were against such a diagnosis.

Clinical Course.—A differential count ten days after admission, with a white count of 5,000, revealed 4 per cent. large mononuclears; 6.5 per cent. small mononuclears; 85 per cent. neutrophils, and 2.5 per cent. eosinophils.

Lumbar puncture was performed, and a clear fluid was found under normal pressure; 7 mononuclear cells per cubic millimeter were found, and the globulin was normal. The Wassermann and colloidal gold tests were negative.

The patient continued with a fever of the same nature, and became rapidly emaciated and at times delirious.

A section of skin was removed for biopsy at two intervals, but no definite diagnosis was made. The discussion of these specimens is included in the pathologic report. The patient was so emaciated that it was thought inadvisable to take blood cultures again, but punctures were made of his hydrocele fluid with the hope of confirming the staphylococcus found in the blood. The hydrocele fluid was quite cellular and hemorrhagic, containing many mononuclears and polymorphonuclears. Cultures from this fluid grew out many staphylococci, among which *Staphylococcus albus* predominated, but a few *Staphylococcus aureus* colonies developed late.

About this time lumbar puncture was made with the same care of the skin as was used in the case of the scrotum, but nothing was grown from the spinal fluid.

About six days after admission the patient developed a toe-drop with complete anesthesia of the lower extremities from the middle of the leg downward, and an ataxia of his toes. This was interpreted as a peripheral neuritis.

Six days after admission the red count was 3,500,000 the white count 4,000, and hemoglobin 65 per cent. Thirteen days after admission the red count was 4,400,000, the white count 4,000, and hemoglobin 75 per cent. Seventeen days after admission and three days before death, the red count was 3,900,000, the white count 5,600, the hemoglobin 80 per cent. A differential count made at the time by one of us (M. A. B.) disclosed: small lymphocytes, 4.5; large lymphocytes, 1.5; large mononuclears, 4; transitionals, 2; polymorphonuclears, 88; eosinophils, 0; basophils, 0. Platelets were normal in number and distribution.

The patient progressed rapidly in the last few days of his illness, and died without showing any unusual development. Diagnosis at time of death was not definitely established, but staphylococcus septicemia, Hodgkin's disease or leukemia was considered the most probable.

COMMENT

The general appearance of the skin lesions, their hemorrhagic inflammatory and nontumorous nature, their tendency to superficial ulceration and very sluggish healing, the enlargement of the liver and spleen, and the degeneration of the spinal cord and peripheral nerves all pointed toward a generalized infection. The blood cultures were confirmatory evidence but not conclusive, because it was apparent that to make blood cultures a needle had to be introduced through a badly infected skin. To overcome this difficulty, the specimens for culture from the hydrocele fluid and spinal fluid were taken with the greatest possible care as to skin preparation;

consequently, when staphylococci grew from the hydrocele fluid in large numbers but did not grow out of spinal fluid, septicemia of staphylococcic origin seemed the most probable diagnosis.

On the other hand, skin lesions such as the patient presented have been described commonly in leukemias, Hodgkin's disease and lymphosarcoma, but the familiar blood picture, the enlargement of the lymph nodes, and the tendency to hemorrhages were wanting. Furthermore, what little evidence of improvement the patient did show under observation was diminution in the size of the liver and spleen. The evidence obtained from examination of the skin at biopsy was also inconclusive, lying between chronic infection and lymphocytic infiltration. Owing to the extensive area of skin lesion and the ample opportunity for skin infection, it is probable that a staphylococcus bacteremia did exist, although playing no active part in the development of the symptoms and progress of the disease, unless it should be to ameliorate the symptoms of leukemia and diminish the leukocytes.

When the frequency of aleukemic leukemia—that is, leukemia in which the peripheral blood shows no abnor-

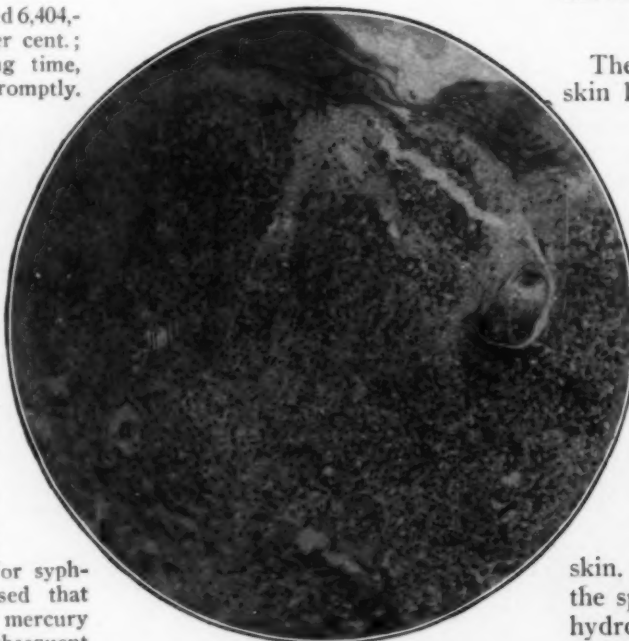


Fig. 2.—Leukemic infiltration of skin.

mal number of white cells—is realized, and when it is understood that such leukemias may run a severe febrile course, going on to a fatal termination without ever presenting a leukocytosis, especially if an adventitious pyogenic infection is present—it should not be difficult to establish a diagnosis of leukemia from the skin lesions alone.

PATHOLOGIC REPORT

First Biopsy (Fig. 2, Oct. 25, 1920).—Specimen is a small piece of skin. The epidermis varies in thickness on account of desquamation of the superficial portion of it in some areas. In some of the sections a few small areas of hemorrhage are present within the epidermis. The entire corium is densely and diffusely infiltrated by two types of cell, namely: large and small lymphocytes, and atypical endothelial cells. In the lymphocytic type of cell degenerative changes are observed, chiefly pyknosis and karyorrhexis of the nucleus. The latter gives some of the cells the appearance of polymorphonuclear leukocytes. The endothelial type of cell varies considerably in size and shape. Mitotic figures are present in these cells in moderate abundance. In the subcutaneous tissue, in many cases situated about the sweat glands, there are present large, irregularly shaped, cellular masses, branches of which infiltrate the surrounding connective tissue. These masses are also composed of lymphocytes and endothelial cells—the latter predominating. There is no congestion, and very few vessels can be seen in the section. Lymphosarcoma, Hodgkin's disease and leukemia, as well as chronic inflammation, are to be considered in this case. The definite characteristics of typical Hodgkin's disease are wanting. The cells infiltrating the corium and subcutaneous tissue, especially those of the endothelial type, show many of the characteristics of neoplasm, yet a definite diagnosis of malignancy cannot be made, since similar pictures have been described in leukemia.

Opinion: Lymphosarcoma or leukemia of skin.

Second Biopsy (Nov. 5, 1920).—Histologic Description: Specimen of skin. In these sections the epidermis is intact. There are no hemorrhages. Cellular infiltration in the corium is very slight. In this specimen the infiltration, which, as in the other, consists of lymphocytes and endothelial cells, is localized principally to the region of the sweat glands. In these sections the picture does not permit of a definite differentiation between leukemia, lymphosarcoma and merely chronic inflammation. But the neoplastic characters which many of the cells showed in the other specimen are not as noticeable in this one.

Opinion: Probably leukemia or lymphosarcoma.

Summary of Necropsy (Nov. 7, 1920).—External Examination: White man, apparently 40 years of age. The body is fairly well developed, but very poorly nourished. The skin of the entire body presents a mottled appearance owing to the presence of an eruption which is characterized by very numerous large or small, roughly circular, and for the most part macular patches, dark purple or light brown, the purple ones predominating. A few of these are slightly raised, and the subcutaneous tissue under them is moderately indurated. Some of the patches have fused to form very large, irregularly shaped ones. The purple color cannot be expressed from the tissue and appears to be due to old intracutaneous and subcutaneous hemorrhage. The epidermis of the whole

body is scaly, this being most marked over the lesions described above. Some of the lesions are covered by a dark brown crust. Any attempt at removal of this crust lifts the superficial layers of the epidermis with it, and leaves a shallow ulcer with a dark brown, moist, unhealthy looking base. In a number of cases, especially over the back, the lesions are already ulcerated, the ulcers being deep, with a base that consists of moist, dark brown, necrotic looking tissue.

Internal Examination: Heart: Weight, 425 gm. The organ is slightly larger than natural, but retains the natural shape. The surface of the entire heart presents a patchy, grayish-yellow and reddish-brown appearance. The grayish yellow areas are not circumscribed and are present as patches and bands which infiltrate the entire muscle tissue. In the parts of the muscle tissue where the light yellow appearance is most marked, the tissue cuts with less resistance than natural, and appears very cellular. Although the appearance at first suggests diffuse fibrosis, yet the ease with which the tissue cuts indicates that we have here a process of marked cellular infiltration rather than of productive inflammation. On the endocardial surface the same patchy yellow and brown appearance of the muscle is seen. The valves are normal.

Lungs: At the base of the right lung, posteriorly, there is an indefinitely circumscribed, irregularly shaped yellowish nodule of consolidation which is similar in its gross appearance to the yellowish areas described in the heart. This area of infiltration is roughly 4 cm. in diameter. The visceral pleura of this lobe is about 1 cm. in thickness. It consists of semi-organized fibrin, and is moderately adherent to the parietal pleura. In the left upper lobe, near the interlobar fissure, there is present a multiloculated abscess lined by a pyoid membrane and filled with thick greenish-yellow, foul-smelling pus.

Bronchial Lymph Nodes: These are moderately enlarged, hyperplastic, and anthracotic.

Spleen: Weight, 525 gm. It is about four times the natural size and slightly altered in shape. The borders are sharp. The organ feels very firm, and cuts with increased resistance. The fresh surface is dark red, moist and bloody. The mal-

pighian corpuscles appear larger than natural, are moderately abundant, and are quite distinct. The pulp does not scrape off easily on the knife and is only moderately friable.

Left Kidney: Weight, 525 gm. It is at least three times the natural size, but retains the natural shape. The capsule is of moderate thickness and strips easily, leaving a smooth surface which has a strikingly mottled and patchy light yellow and dark brown color. The tissue cuts with the natural resistance. The fresh surface of the cortex bulges slightly, and measures 1 cm. Throughout the cortex and medulla there are present numerous patches of light yellow which resemble markedly the patches seen both in the heart and in the lung. The natural vascular striations and the glomeruli in the cortex are quite distinct in the dark brown portions, but in the yellowish areas these are partially obliterated. The differentiation between the cortex and medulla is fair. In the region of the yellow patches, the tissue is unusually friable. The pelvis is relatively of the natural size and there is very little peripelvic fat.

Right kidney: Weight, 550 gm. This kidney resembles the other in all respects.

Suprarenals: These are large, but show no gross abnormality otherwise.

Pancreas: Weight, 125 gm. The organ is of the natural size and shape. The surface color, and on section, the color

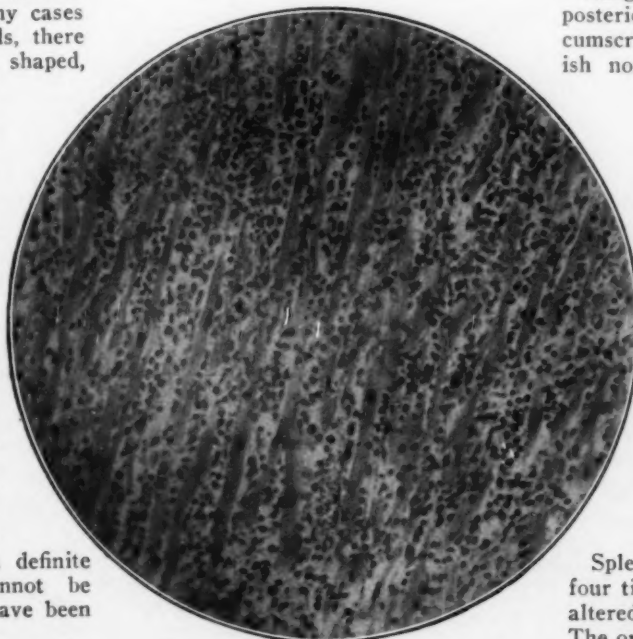


Fig. 3.—Leukemic infiltration of heart.

of the fresh surface, is an unusually pale yellow. The parenchyma is moderately friable.

Digestive System: The stomach, duodenum, small and large intestine and appendix show no gross abnormality.

Liver: Weight, 2,325 gm. The organ is moderately enlarged, but retains the natural shape. The border is slightly rounded. The surface color is light yellow, and the capsule is thin, smooth and glistening. On section, the tissue cuts with natural resistance. The fresh surface is very light yellow, mottled with very small red spots, the central zones, which are moderately congested. The tissue is only moderately friable.

Gallbladder: This shows no gross abnormality.

Genitalia: There is present a hydrocele of the left tunica vaginalis testis. It is the size of a goose egg and contains clear, watery fluid. The epididymis on both sides is very much enlarged, nodular and firm. The tissue is rather densely fibrous. The testes are of the natural size and show no gross abnormality.

Prostate: This organ is of the natural size, but feels much firmer than natural.

Bone Marrow: The bone marrow from the middle of the shaft of the tibia is light grayish brown in appearance. There appears to be a definite decrease in the amount of fat, and increase in the cellularity of the tissue. It is rather soft and mushy.

Histologic Examination.

Sections of Heart: In the sections taken both from the yellow areas and from the more normal looking reddish-brown areas, the muscle tissue shows very marked diffuse infiltration between the fibers by large and small mononucleated cells. These cells vary somewhat in size, but are mostly rounded. The nucleus is relatively large, stains moderately with basic stain, and the chromatin is fairly evenly distributed. In the smaller type of cell, the nucleus stains more deeply; the cytoplasm is present in relatively small amount, and stains lightly with basic stain. In some respects the larger cells resemble those in the germinal center of lymphoid follicles, and the small ones look like well differentiated lymphocytes. Occasional mitotic figures are present in the larger cells. In the sections taken from the light yellow portion of the muscle, the individual muscle fibers are separated widely from one another by this marked cellular infiltration, and continuity of the fibers is broken in many cases. Many of the fibers appear narrow and compressed by the infiltration. The cross striations are very distinct in all the fibers, and the nucleus appears normal. There is only moderate congestion throughout the tissue, and the vessels contain the normal proportion of red and white cells (Fig. 3).

Sections of Lung: In the sections taken from the consolidated nodule at the base of the right lung, the pleura is markedly thickened and consists of partly organized fibrin, moderately but diffusely infiltrated by plasma cells, polymorphonuclear leukocytes and lymphocytes. Young fibroblasts are present in moderate abundance. The interalveolar tissue of the lung is very markedly infiltrated by mononucleated cells, which resemble in all respects those infiltrating the heart muscle. In most cases, the alveoli are empty but compressed so that the lumen in some cases is not very evident. In some areas the combination of collapsed alveoli and markedly infiltrated interstitial tissue gives the appearance of inflammatory consolidation. A few of the alveoli contain mononucleated cells. There is no fibrin present. The vessels in the interstitial tissue are congested, but contain the normal proportion of red and white cells.

Sections of Bronchial Lymph Nodes: The capsule is of moderate thickness. The lymphoid follicles are large and hyperplastic. In many of them no germinal center can be identified. There is also moderate diffuse hyperplasia of the lymphoid tissue throughout the node, and a definite increase of the reticular connective tissue, which, in some areas, assumes the form of wide, dense bands.

Sections of Spleen: The capsule is of moderate thickness. Trabeculae are present in normal number and are of moderate width. The malpighian corpuscles are for the most part larger than normal, and they are indefinitely circumscribed. The sinusoids are markedly congested with red blood cells which are in most cases conglutinated. Throughout the pulp there is present a large amount of amorphous blood pigment. There is no increase in the number of lymphoid cells in the pulp.

Sections of Kidney: The capsule is of the natural thickness. Between the glomeruli and between the tubules throughout the kidney substance there is very marked and diffuse infiltration by large and small mononucleated cells, which resemble in all respects those described in the heart. In some of the sections the infiltration is so marked and the destruction of kidney substance so great that it is difficult to recognize that the section comes from the kidney.

Although the tubules are in many cases completely obliterated, the glomeruli are remarkably well preserved. An occasional glomerulus shows partial fibrosis and hyalinization, and Bowman's capsule is slightly thickened; but for the most part they appear normal. In the section in which the infiltration is less marked, the lining epithelium of the tubules shows marked parenchymatous degeneration with partial or complete desquamation. Casts are present in many of the tubules. There is rather marked congestion throughout, but the vessels contain red blood corpuscles and white cells in normal proportion (Fig. 4).

Sections of Pancreas: Between the lobules and between the individual acini, there is found to be moderate diffuse infiltration by mononucleated cells similar to those that have been described

in the other organs. The acini show no microscopic abnormality.

Sections of Liver: The capsule is of moderate thickness. In the portal spaces there is moderate infiltration by large mononucleated cells and some lymphocytes. The central veins are enlarged, and the central zones are congested and hemorrhagic, and show necrosis of many of the liver cells. Throughout the lobules, but most marked at the periphery, the cells show marked fat infiltration.

Sections of Retroperitoneal Lymph Nodes: With the exception of the absence of anthracotic pigmentation, these lymph nodes resemble the bronchial lymph nodes in all respects.

Sections of Bone Marrow: There is a relative increase of cellular constituents and decrease in the amount of fat, but the increase in the number of cells is not very marked, and their character is not altered from the normal. Practically the normal proportion of nucleated red cells, myelocytes, leukocytes and myeloplaxes is seen.

Sections of Epididymis: Sections show a marked recent subacute and an old inflammatory process. No definite evidence of tuberculosis can be seen.

Bacteriology.—Cultures were taken from the heart's blood and from the hydrocele fluid. From the heart's blood numerous colonies of a pure culture of *Staphylococcus albus* were obtained. The hydrocele fluid proved sterile.



Fig. 4.—Leukemic infiltration of kidney.

DIAGNOSIS

1. Leukemic infiltration, lymphatic type, of skin, heart, right lung, kidneys, pancreas, liver, thoracic lymph nodes and abdominal lymph nodes.
2. Parenchymatous degeneration of kidneys.
3. Chronic passive congestion and fatty metamorphosis of liver.
4. Multiloculated abscess, upper lobe left lung.
5. Organizing fibrinous pleurisy, right lower lobe.
6. Epididymitis, subacute, bilateral.
7. Hydrocele, left.

TREATMENT OF AORTIC ANEURYSM
BY WIRING AND ELECTROLYSIS

A FURTHER REPORT

HOBART AMORY HARE, M.D.

Professor of Therapeutics and Diagnosis, Jefferson Medical College
PHILADELPHIA

Previously, I¹ have reported a considerable number of cases of sacculated aneurysm of the aorta treated by wiring and electrolysis. Since then, three other patients have been so treated, all of them with excellent results, as the reports presented herewith show. The second case was so advanced when the patient came under observation that anything more than palliative treatment and brief prolongation of life could not be expected (Figs. 1 and 2).

As pointed out in my last report, and in the earlier reports, one of the most important effects of the opera-

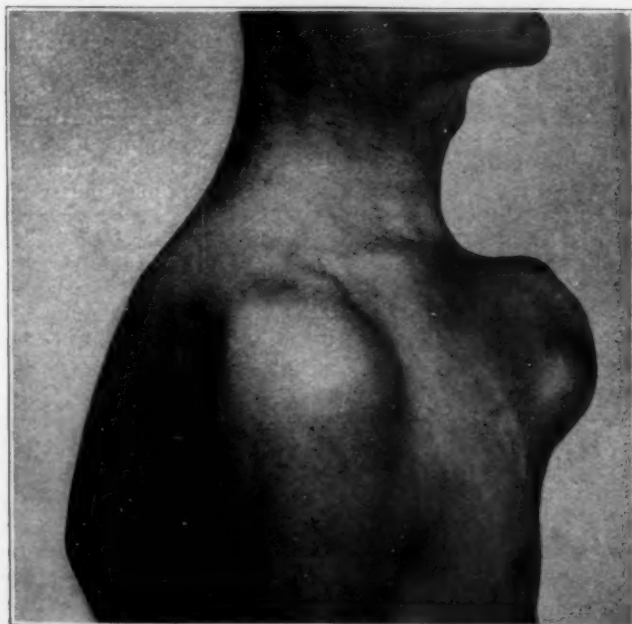


Fig. 1 (Case 2).—Right lateral view of aneurysm.

tion is the relief of pain, which usually occurs almost at once in every case.

REPORT OF ADDITIONAL CASES

CASE 1.—*History*.—A man, aged 49, referred to me by Dr. Harris of Franklin, N. C., had lost his right arm in a cotton machine. The tearing may have had some effect in producing

1. Hare, H. A.: *Therap. Gaz.* 24:9 (Jan. 15) 1900; *ibid.* 27:19 (Jan. 15) 1903; *The Treatment of Sacculated Aneurysm by Wiring and Electrolysis*, *J. A. M. A.* 58:1088 (April 13) 1912; *Three Cases of Wiring with Electrolysis for Aortic Aneurysm*, *ibid.* 62:1217 (April 18) 1914; *Three Cases of Aortic Aneurysm Treated by Wiring and Electrolysis*, *ibid.* 73:1865 (Dec. 20) 1919.

the aneurysm, which did not erode the ribs, but which produced distinct pulsation in the second right interspace.

Operation and Result.—Dec. 1, 1919, 15 feet of platinum-gold wire was introduced and the current passed, beginning with 5 and reaching 50 milliamperes at the end of thirty minutes. The patient's chief complaint before operation was pain in the right side, and cough. The day after the operation he had no pain, and two weeks later he was allowed to sit

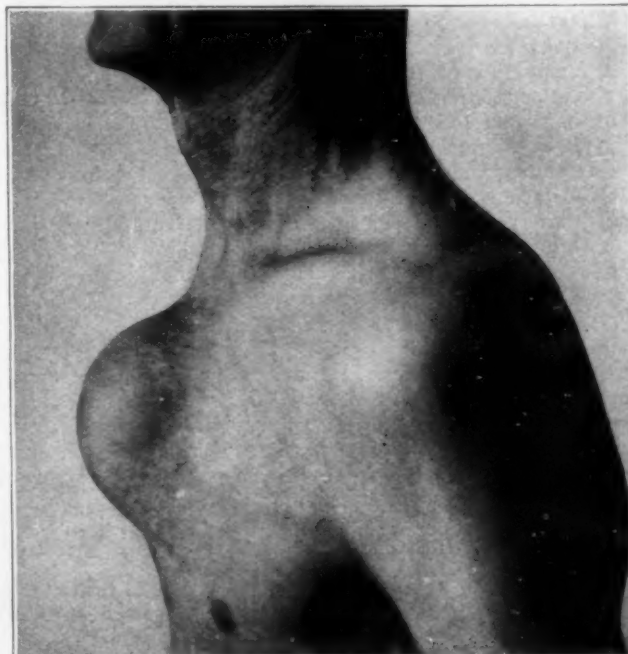


Fig. 2 (Case 2).—Left lateral view of aneurysm.

up in bed. Four weeks after the operation he got out in a chair. The cough and pain at this time had almost ceased. The roentgen-ray report, made forty-eight days after the operation, reads: "Comparing 6 foot exposures before and after the wiring, the ascending arch of the aorta appears to be slightly smaller. This is believed to be largely due to the fact that there is very much less pulsation in it and, therefore, the outline is more sharply defined and has not the extra width of expansion."

Dr. Harris' reports under date of Feb. 23, May 4, and Sept. 27, 1920, are of interest: "I am glad to be able to write very favorable news regarding ———. He stood the trip home finely and arrived in good shape. The aneurysm does not hurt him at all, and it is very perceptibly smaller. When I examined him a few days ago, I could not detect any bruit. His general condition is fine and, according to my judgment, the operation was as great a success as one could expect. He is in every way pleased with the result." And again: "I think he continues to improve, though he suffers from some pain in the chest when he lies on the left side. The aneurysm is reduced, pulsates less, and a bruit is barely heard. Getting about at times gives him some pain, but nothing like before the operation. I think on one or two occasions he exercised too much, but he traveled 60 miles and felt no bad effect, made the trip the next day and this caused some discomfort. His appetite is good, digestion fine, and he sleeps well." Lastly, about ten months after the operation: "I am pleased to write that ——— is doing finely. I can truthfully say that the results of the operation have been wonderful. I do not believe that he would have been living if it had not been done. I am sure he would not have lived if he got around as he has since the operation. His physical condition is fine, the picture of health, and he gets around a great deal; too much according to my judgment. He travels 30 miles in an auto, spends the day, takes in a ball game, walks around a great deal, and returns home. He has taken much longer trips, but when he does he has some pain."

CASE 2.—History.—The patient, referred to me by Dr. Hope of Mobile, Ala., stated that he had been in excellent health until five years before. At that time a pain developed in the chest, and a New Orleans physician told him he had an aneurysm. In November, 1918, he was in an accident in which he fell forward on his chest, striking an iron rod. Three days afterward he noticed a lump rising in his chest, the size of half a dollar, which had been growing until it measured 6 inches transversely and 6½ inches longitudinally outside the chest wall (Figs. 1 and 2). In this mass he experienced boring pain.

Examination.—The patient was well nourished but lean. The lump on the chest was actively expansile, and at the apex of the tumor there was a soft spot, the wall of which was very thin, somewhat ecchymotic and very expansile. The roentgen-ray report was: "An aneurysm involving the last portion of the ascending and extending to first portion of the descending arch. It projects directly forward through the chest wall with no lateral or posterior pointing although the rest of the growth is pushing backward to the left to the vertebral column." The roentgenologist also reported that he considered the case an unusually favorable one for wiring.

Operation and Result.—Feb. 12, 1920, I introduced 20 feet of gold-platinum wire, with the current gradually increasing from 5 to 45 milliamperes in the course of three quarters of an hour. On the 15th, it was noted that the mass was harder except for the soft spot near the lower part. Figure 3 shows the wire in the sac after operation. February 20, the soft spot was more limited. There was no pain but some cough. On March 4, the notes stated that the aneurysm was uniformly hard, and on March 7, against my advice, the patient went home. In this case also the boring pain was practically entirely relieved.

Under date of April 27, 1920, Dr. Hope writes: "I am writing to advise you of the death of ——— on April 21, two

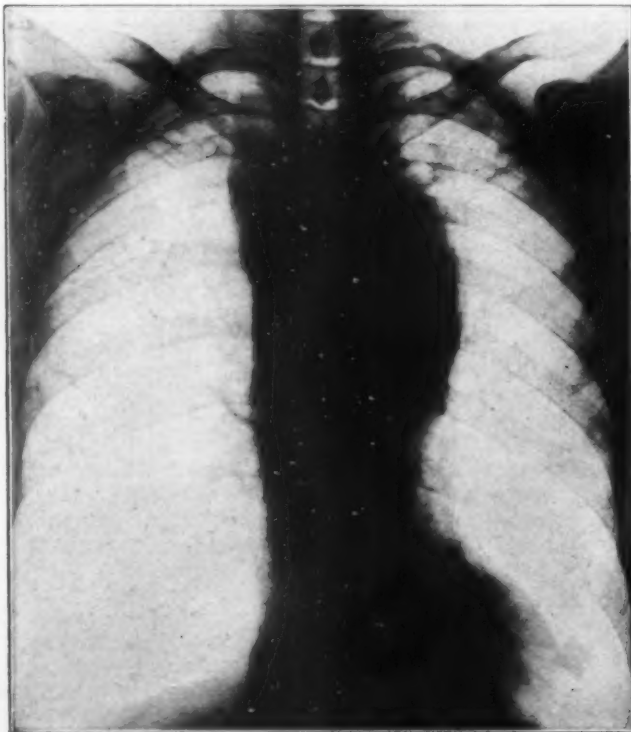


Fig. 3 (Case 2).—Anterior view of aneurysm of last part of transverse portion and first part of descending portion of the arch of the aorta, showing strands of wire in lower part.

months and nine days after operation. The aneurysm ruptured into the esophagus and he died within five minutes. The skin over the tumor became inflamed, and finally, after five days, broke down, and he began to have slight hemorrhages from it at intervals of from twelve to twenty-four

hours. I removed the wire after death and found quite a firm clot. I am sure he would have gone sooner had he not been wired.

CASE 3.—History.—The patient was referred to me by Dr. Brown of Toledo, Ohio, presenting a case of sacculated

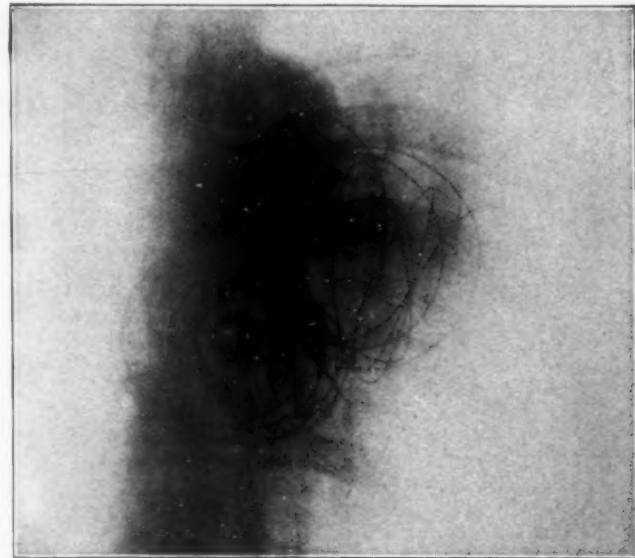


Fig. 4 (Case 3).—Anterior view of aneurysm showing wire in situ nineteen days after operation.

aneurysm of the first part of the descending aorta, pointing to the third left interspace, anteriorly. It did not erode the ribs, but produced definite pulsation in the second and third interspaces, anteriorly. He had had considerable pain and there was a heaving impulse transmitted to the chest wall over a considerable area.

Operation and Result.—Wiring and electrolysis was performed, May 26, 1920. Figure 4 shows the aneurysm with the wire coiled in it. The roentgen-ray report of June 18 reads: "There is no evidence of localized bulging. The outer end of the wire is in the center of the area of maximum pulsation." On July 6, the roentgen-ray report stated: "We get the impression that the aneurysm is slightly smaller."

The patient returned home, July 7, 1920, stood the trip well, and was ordered to rest for at least four weeks. Under date of Dec. 6, 1920, he wrote: "I am getting along fine and working every day. I have very little trouble with my chest. I have not been taking any medicine."

1801 Spruce Street.

Infant Clinics and the General Practitioner.—At the Edinburgh infant clinics every effort is made to educate the mothers in the simple rules of infant hygiene; when curative treatment is called for, patients are referred to their own physicians, or failing such, to one or other of the curative clinics. Dr. A. Maxwell Williamson, observes (*Med. Officer* 25:7 [Jan. 1] 1921) that there is no doubt that, as a rule, the class of mother who attends such clinics seldom seeks the advice of her physician before her child has become really ill. She often overlooks the very beginning of disease. One of the aims of a preventive clinic is to detect these very beginnings of disease so that a mother can be advised to consult a physician early and thus give him a chance to deal effectively with the condition in its most hopeful stage, and not when it is far advanced, for then the treatment is more difficult and the results often less satisfactory. The object of these clinics, therefore, is to cooperate with the general practitioner and not to take the treatment out of his hands. At Edinburgh, as elsewhere, experience has shown that those infants who are brought regularly to the preventive clinics mostly show a satisfactory weight curve, whereas those who for various reasons are brought at irregular intervals seldom show so satisfactory a result.

Clinical Notes, Suggestions, and New Instruments

THE SAVENAY ABDUCTION SPLINT MADE UNIVERSALLY ADJUSTABLE

AUGUSTIN A. CRANE, M.D., WATERBURY, CONN.

I will assume that the advantages of abduction in various degrees in the treatment of certain fractures of the humeral shaft or neck are conceded, and the only question that I shall consider here will be that of the simplest and most efficient way of producing such abduction. This form of treatment has probably never been carried out so extensively and so successfully as at Savenay during the activities of the American Expeditionary Forces. Wooden aeroplane splints were made from packing boxes in the workshops, by the enlisted personnel. Not a particle of new lumber was available for the purpose, but they got together a lot of stuff from packing boxes to keep the supply going. The ward surgeon would write a prescription for an aeroplane splint, prescribing the length of the pelvic-axillary strip, the degree of abduction, the length of the humeral strip, the angulation of the elbow desired, and whether for right or left side. From these direc-

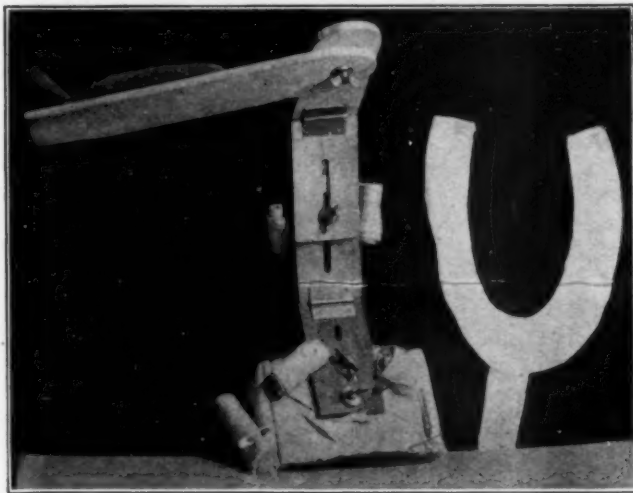


Fig. 1.—Splint with Jones cock-up shoulder girdle.

tions the splints were knocked together and delivered at the ward in about twenty minutes. These were held on by a complicated arrangement of figure-of-eight bandages about the neck and axilla, which required special technic in order to apply them, and constant adjustment in order to keep them from pulling unbearably on the neck and axilla. For every change in abduction or in elbow flexion they had to be dismantled, returned to the shop, rebuilt and repadded. This worked very well there where the supply was plentiful, and the know-how general.

In endeavoring to follow this technic in private practice I found it necessary either to keep on hand a prohibitory number of these splints, or else to be constantly making alterations, each of which would be troublesome, and each of which would spoil the splint for the next patient. I have also found the pulling by figure-of-eight bandages about the neck and axilla to be a very awkward complication, and the necessity of having a duplicate supply of splints for right and left sides has been annoying. Therefore, I have devised, and herewith submit, a modified Savenay splint, which I do not claim to have any advantages over the Savenay article except the great one of adaptability. It is made of half-inch wood, sheet-iron for the pelvic pad, lined with felt, the joints are all made of half-inch hinges, and the adjustments made and locked with $1\frac{1}{4}$ by $\frac{1}{4}$ inch stove bolts with wing nuts and large washers. It is instantly adaptable to either right or left side; the pelvic-axillary strip has with its bolts to the iron

pad an adjustment of 2 inches in length; the abduction is instantly adjustable anywhere between 90 and 45 degrees; the humeral length is by a slot adjustable for a space of $2\frac{1}{2}$ inches; the elbow flexion is adjustable to any angle, and in later treatment can be left loose, permitting free active flexion



Fig. 2.—Abduction of 45 degrees; before bandaging.

by the patient. Jones' cock-up splint allowing for any length of forearm is attached to the forearm strip by either a screw or bandage. There is no need of any strut from the wrist to the pelvis, as there is no downward drag whatever on the forearm.

The salient feature of the device is in the shoulder girdle. It took considerable fitting to devise the pattern whereby to cut a shoulder girdle which would lie vertically against the thorax under the axilla, and horizontally over the clavicle. This is made of heavy double canvas cut to pattern, with a felt pad over the clavicle. To this the four strips of webbing are pinned. As all of these pull in opposite directions to each other, the pull is neutralized, and the shoulder girdle is kept away from the axilla at every point, and cannot constrict. Nor does it come anywhere near the neck at

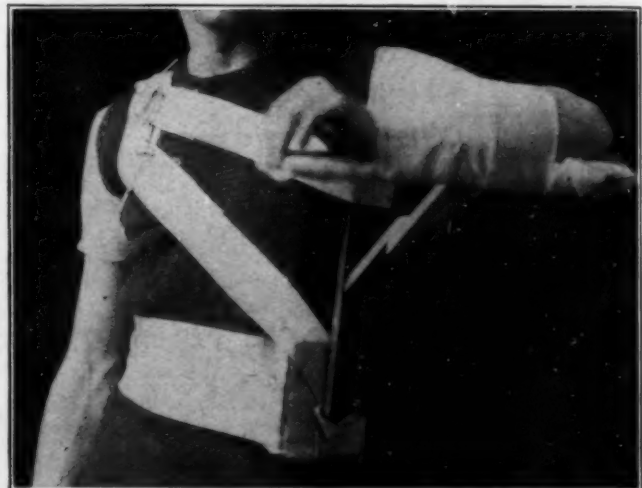


Fig. 3.—Abduction of 90 degrees; after bandaging.

any time. The freedom of this girdle from the axilla is increased by a band going downward from it to the horizontal belt. With the aid of a shoe-maker and my chauffeur I made the first one of these in an hour. Now that the patterns are standardized, we could make one in shorter time.

It will be noted that there is no claim for this as a traction splint. There are numerous excellent traction splints, and

this does not pretend to be one. A moderate amount of traction can be exerted from the radial surface of the upper forearm down to the point of the humeral strip of wood. After the first reduction, with the muscle strains all fully neutralized in abduction, there is usually very little need for traction. If these were to be made in quantities, it would probably be better to make them of metal and in the form of a trough, as it is not well to flatten out muscle bellies against a flat board for any length of time. The use of the Jones cock-up splint or its equivalent in some form is highly essential to the use of this or any other apparatus carrying the forearm. The original aeroplane splint of all, made by Dr. Leyva of South America, at the American Ambulance in Paris in 1916 was a pioneer in adjustable abduction splints, and had the advantages of furnishing very efficient traction; but the application of its main support to the thorax rather than, as in more modern splints, to the crest of the ileum, was a serious defect. The Jones abduction splint does not reach to the pelvis, does not completely support the entire under surface of the arm and forearm, does not support the wrist at all, and the pressure of its upper strap on the neck is uncomfortable.

In the illustrations, padding and bandages are purposely omitted, for purposes of clearness.

300 West Main Street.

AINHUM, A FAMILY DISEASE

KEITH M. B. SIMON, M.B., D.P.H. (LONDON), BELIZE, BRITISH HONDURAS, CENTRAL AMERICA

Ainhum is fairly common in British Honduras. It has been described as a chronic dystrophy of the fifth or fourth toe in native races, characterized by the formation of a furrow at



Appearance of the foot in ainhum.

the digitoplantar fold. This fibrosis extends, injuring the vessels, and producing an endarteritis obliterans and a rarefying osteitis. I have noticed a similar dystrophy in the little finger of an Indian. That the disease is inherited is proved by the fact that the father and brother of the patient, the condition of whose foot is illustrated herewith, suffered from the same condition, all ending in loss of the toe. The cause of this disease is unknown; but the theories that it is due to leprosy or self-mutilation are untenable. The condition resembles ground itch, except that in ground itch there is ulceration under every toe; in ainhum, under only one toe.

The treatment consists of an incision longitudinally into the constricting band, allowing reestablishment of the circulation.

Esmarch Tourniquets Made from Old Inner Tubes.—Dr. ELWOOD BAKER, Dermott, Ark., writes: Scraps of old inner tubes, which can be found in any automobile garage and cut

Old inner tube cut 36 by 1½ inches.

with scissors to the size here given, will make good Esmarch tourniquets. They are more elastic, more durable and stronger than any rubber bands that can be purchased.

A CASE OF ABDOMINAL PREGNANCY AT SEVENTEEN MONTHS

CHARLES F. DAVIDSON, M.D., EASTON, MD.

History.—V. G., a married woman, aged 24, mulatto, was admitted to Easton Emergency Hospital, Dec. 2, 1920. The patient's temperature was 98; pulse, 76; respirations, 20. The family history was negative. She had measles when a child, and influenza several years before admission. Menstruation began when she was 13, and had always been regular and normal. When she missed the menstrual period in August, 1919, she thought she was pregnant; she had never been pregnant before. October 25, her family physician told her she was three months pregnant. During these three months she had some pains in the lower part of the abdomen, and for these the physician gave a placebo and told her she would be confined about May 1. He saw her again, May 9, 1920, and considered her at term. There were very active fetal movements, and palpation disclosed a child; but the fetal heart was not heard. May 13, he was sent for again. The patient thought she was in labor. The abdomen was in violent tonic contraction. One-fourth grain of morphin and 80 grains of bromid were necessary to relieve. During June the patient sent for the physician three times for pains and nervousness.

On admission to the hospital the uterus was normal in size and firmness (nonpregnant). The cervix was about the normal size and length. Pelvic measurements were: intercrystal, 27 cm.; interspinous, 26 cm.; anteroposterior conjugate, 12.5 cm. No fetal heart or movements were noted.

A hard, round body like a fetal head could be felt in the left hypochondrium under the floating ribs. No body could be palpated. The balance of the tumor was a fluctuating mass with a wave from side to side when the abdomen was palpated. The whole mass could be mapped out, and the abdomen had the appearance of a nine months pregnancy with striae, etc. The patient had felt no fetal movements since May 13, 1920, the day she thought she was in labor. June 13, 1920, menstruation came on, lasted four days, and was normal in every respect, and had occurred every four weeks since. There was no menstrual period from July, 1919, to June 13, 1920.

Operation and Result.—An incision was made a little to the left of the median line from 2 inches above the umbilicus to the pubes, and a greenish gray tumor was brought into view, to which the abdominal wall was adherent. On the left side, the size of a silver quarter, the tumor was so firmly adherent that when separated it showed that a hole had been there and closed by the abdominal wall. As soon as these were separated, a large hole was torn into the sac wall and there was a gush of dark brown fluid, a gallon or more, filled with particles of dried fecal matter with no odor. The hole was torn larger and a child lifted out and the cord cut. The sac was then tied off with the right tube and ovary and taken out. Cutting the cord and tearing the opening in the sac was accompanied with no flow of blood. The sac, and the skin on the child had the feeling and appearance of leather that had been soaked in water for a long time. The bladder in front and the intestines behind were adherent to the sac, and there was a good deal of oozing of blood while these were peeled off, and in some places ties had to be used. Three cigaret drains were placed, one in the pelvis, behind the uterus, one in the right iliac region and one from above. The wound was closed to the drains.

The sac with the placenta weighed 2 pounds, 14 ounces. The baby was 23½ inches long, 21½ inches across from the tip of the forefinger to the other, weighed 7 pounds, 7 ounces, and there was absolutely no blood in it. The cord was 9 inches long, the sac thick, 1 inch in some places, and thin as paper in others. The tube was very large and thick and had the appearance of having ruptured, and the sac and contents came out through the laceration in the tube. This rent was near the fimbriated extremity and on the top of the tube. The laceration in the tube evidently took place during early pregnancy. The pedicle that held the sac to the tube came from the inside of the tube through the rent in the tube.

The patient left the hospital, Dec. 24, 1920, in good condition. Jan. 20, 1921, her physician reported that she was entirely recovered.

PITUITARY EXTRACT IN CONJUNCTION WITH
LOCAL ANESTHESIA

G. C. OTRICH, M.D., BELLEVILLE, ILL.

In the last year there has been considerable investigation on local anesthesia. In going over the reports and records of the various investigators, I have not found mention of a combination which has proved more satisfactory than the one I have used for the last seven or eight years in the surgery of the nose, throat and mouth, when local anesthesia was applicable.

I use a 2 per cent. procain solution in combination with pituitary extract, 1 c.c. of the obstetric strength, to 5 c.c. of the procain solution. When a larger amount is to be used, I use the surgical strength.

My preference for pituitary extract to epinephrin is that the action is slower in taking effect and lasts much longer, which is proved by taking the blood pressure curve after the injection. The longer period of vasoconstriction gives a better chance for the organization of the clot. The slow passing effect and the slow returning to normal of the small vessels gives the clot a better chance for further fibrination, thus holding more securely. In epinephrin the action is very rapid and the effect passes with the same rapidity. Therefore, sufficient time is not given for clot formation and fibrination. Furthermore, in the sudden relaxation of the walls of the small vessels and arterioles, the clot will be washed away and the secondary hemorrhage will take place, and it will be harder to control than the original.

AN INTRATHORACIC TUMOR

LORENZ W. FRANK, M.D., DENVER

This case is reported on account of the unusual findings, and because I have been unable to find a similar case in the literature.

History.—Mr. N. J., aged 55, captain of a lighter, married, came to Colorado from Brooklyn, June 20, 1919, and he was examined, July 24, 1919. His present illness began, May 1, 1919, with cough and expectoration. The cough occurred between the hours of 1 and 3 a. m. The expectoration at this time was slight. He had had occasional night sweats; he could not sleep on the left side on account of the cough. He slept poorly, from four to five hours, and was very nervous. His average weight in health was 135 pounds. He had measles and influenza in January, 1919, and chancre, thirty years ago. Appendectomy was performed fifteen years ago. The left turbinate was removed ten years ago. He was told that he had had bronchial catarrh for the last ten years. Six or eight years ago he had a severe coughing spell with the expectoration of a large amount of mucopurulent sputum. The family history was unimportant. His wife, aged 41, and one child were living and healthy.

Physical Examination.—The patient was 5 feet 4 inches tall, and weighed 128 pounds. The pupils were equal and reacted to light and accommodation. The tongue was slightly coated. The teeth were in fair condition. The mucous membranes were anemic. The fingers were normal, the nails curved. The respirations were from 18 to 22 a minute. The pulse was 88 and regular. The temperature was normal. The chest circumference, on forced expiration, was 34 inches; on forced inspiration, 35½ inches. The heart was displaced 2 inches to the right. The left lower lobe of the lung was dull. Vesicular murmur was diminished over the entire left lung. The abdomen was negative.

Laboratory Findings: The urine and feces were negative. The sputum was positive for tubercle bacilli. Blood examination revealed: erythrocytes, 5,000,000; leukocytes, 11,200; hemoglobin, 60 per cent.; differential count: lymphocytes, 26 per cent.; large mononuclears, 3 per cent.; polymorphonuclear eosinophils, 5 per cent.; polymorphonuclear neutrophils, 66 per cent. The blood Wassermann test was negative.

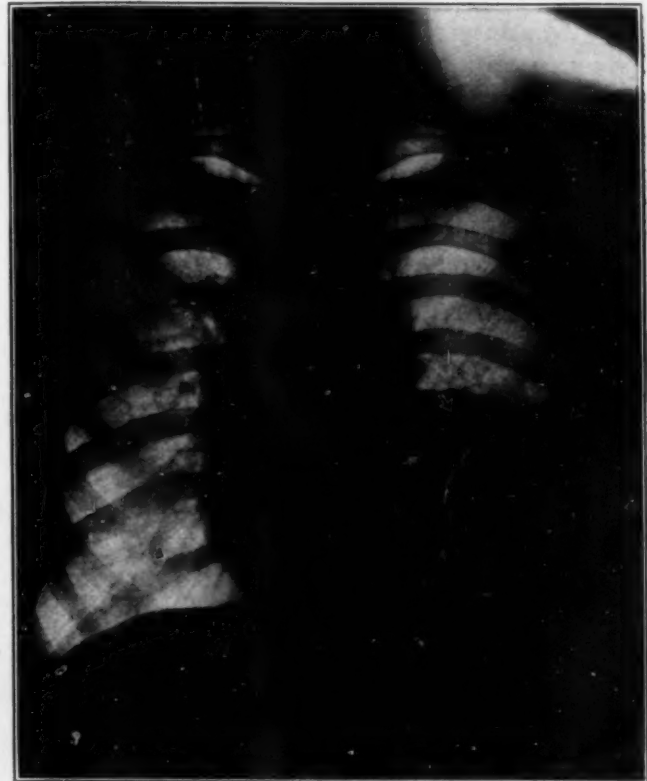
Roentgen Examination of the Chest: The right diaphragm was mobile; the left was pushed down by a large tumor mass in the left lower anterior chest. The heart was to the right.

There was some fibrous change about both hilums. The lung parenchyma was quite clear.

Operation.—The patient wished to return to his home for operation and was referred to Dr. Willy Meyer, who reports on the operation and findings as follows:

On October 25 I performed thoracotomy on the patient and found a semifluctuating tumor the size as shown by the roentgenogram. It was subpleural and broadly attached to the left side of the diaphragm. The wall showed quite a number of calcareous deposits; the lung was tightly adherent. There were also firm, bandlike adhesions to the chest wall. It was possible to free the tumor of the latter, but on gently pushing off the lung the wall broke, evidently at the place where he had a perforation into the bronchial system, with expectoration of thick, yellowish material seven to eight years ago. It contained inspissated, thick, viscid, yellow matter such as one is apt to find in an old cold abscess—oftener in a sebaceous cyst with soft content. It was possible to shell out the entire mass, which had an extremely thin-walled shell.

The patient stood the operation nicely and was drained in the air tight way, as I am used to doing it, the main wound being hermetically closed. After twenty-four hours he developed fulminant pneumonia on the right side (the temperature going up to 106) to which he succumbed thirty hours after the operation—to my regret.



Large tumor mass in left base of chest, with shifting of heart to the right. Some glandular infiltration at each hilum.

The anesthetist had quite some trouble in introducing the tube for intratracheal insufflation. The patient needed a large amount of anesthetic and presented particular difficulties to the introduction on account of a lordosis of the cervical spine. It had been my intention, originally, to operate under pharyngeal anesthesia; but on discussion it was thought best, in a case like this, to be ready for all emergencies.

Pathologic examination proved the tumor to be of tuberculous origin, the wall containing mucous glands which probably were derived from the bronchial epithelium. It certainly did not give evidence of any tissue usually found in a dermoid, or even in a sebaceous cyst.

COMMENT

It certainly needs further research in order to learn how best to avoid the unfortunate occurrence of pneumonia after intrathoracic operations. If we could succeed in establishing the principle on the basis of which this complication could be avoided in the greater percentage of cases, the outlook for improvement or a cure of these patients would certainly be bright and the evolution of thoracic surgery would no doubt make more rapid strides, for the principles underlying these operations as such, and the after-treatment, are perfectly understood, even now.

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SATURDAY, FEBRUARY 26, 1921

METABOLISM AND DIET IN TUBERCULOSIS

In the management of tuberculosis dietotherapy has long occupied a place of primary importance, perhaps justly, since none of the more specific therapeutic measures, including tuberculins of diverse sorts, vaccines, serums or drugs, have gained paramount significance. A recent writer has reechoed a widespread belief by stating that beyond possible doubt "food, good food, properly chosen, properly prepared and eaten in cheerful surroundings is our sheet anchor in this disease."¹ Yet a survey of current proposals reveals widely divergent views as to how the tuberculous may best be nourished.

As if overwhelmed by the thought of "consumption," some clinicians have advised an ultraliberal intake of food for the patients almost regardless of the digestive disturbances which ill considered dietary measures may readily provoke. It is related that Debove, having discovered by accident not only that gastric lavage arrested the vomiting of phthisical patients but also that food introduced through a tube could be retained and digested, proceeded to disregard the anorexia of tuberculous patients, and fed them with extreme liberality. A system of "superalimentation" involving the use of literally enormous, concentrated diets found considerable vogue for some time until a reaction set in against it. Other vagaries of treatment concerned the proportion of protein to be included in the diet. Again, fats, particularly cod liver oil and egg yolk, claimed prominence in the directions to the afflicted. Summarizing the practice in nearly a hundred leading sanatoriums of the world in 1908, Irving Fisher² stated that the total calories fed ranged from a maximum of 5,500 to a minimum of 2,140, the intake of protein varying from 60 to 90 gm. a day.

The study of metabolism has meanwhile advanced to a stage which makes it possible to ascertain with scientific accuracy whether undue demands for energy are made on the body during the progress of tuberculosis. Calorimetric investigations of the metabolism in

fever have left no doubt as to the large toll which this abnormal condition levies on the body's store of nutriment. As a consequence the dietetic treatment, notably in the case of typhoid fever and other conditions recently discussed in *THE JOURNAL*, has been beneficially modified in the direction of liberality. It is high time that an equally rigorous analysis be applied to metabolism in tuberculosis, so that the physician may be intelligently guided in the prescription of suitable diets for his patients. Thanks to the contributions by McCann and Barr³ from the Russell Sage Institute of Pathology at Bellevue Hospital, New York City, some dependable facts are at length available. From these it appears that the basal metabolism of tuberculous patients may be normal or slightly above that of normal men of the same size. Thus, in ten cases, the variation from the average normal was from minus 3 to plus 15 per cent. Further increases in metabolism occur with a rise of body temperature. These increases are not large. Thus, one case is reported in which the temperature rose 1 degree centigrade during two hours, without a chill. The heat production of the second hour was only two calories greater than that of the first hour. With a rectal temperature of 104 F. (40 C.) the metabolism may be 30 per cent. above the average normal. The basal heat production in tuberculosis may be less than the normal for the same patient when in health; in other words, the loss in weight may be accompanied by a reduction in metabolism which more than compensates for the tendency to increase caused by the disease.

One would expect some toxic destruction of protein in any febrile disease. At most, however, it is not large in tuberculosis. McCann and Barr venture to believe that many febrile tuberculous patients may be kept in nitrogen balance on diets containing from 60 to 70 gm. of protein each day. This amount, they remind us, is much less than Voit's standard allowance (118 gm.) for normal men, though somewhat greater than the normal minima of Chittenden and of Sherman (from 35 to 45 gm.). It is much less than is fed to patients in many of the sanatoriums for tuberculosis. Consequently, forced feeding and high protein diets are unnecessary if not actually harmful in the active stages of pulmonary disease. In fact, the increased metabolism necessitated by overliberal food intakes leads to an increment of respiratory activity at a time when pulmonary rest is quite as much indicated as is muscular rest.

In furnishing specific data, the New York investigators conclude that during periods of activity of a pulmonary tuberculosis the diet need not contain more than 500 calories above the basal requirement (from 2,000 to 2,500 calories), nor more than 60 gm. of protein. The object of such a diet is to maintain the respiratory activity at the lowest level compatible with

1. Carter, H. S.; Howe, P. E., and Mason, H. H.: *Nutrition and Clinical Dietetics*, Philadelphia, Lea & Febiger, 1917, p. 288.

2. Fisher, Irving: *Proc. Sixth Internat. Cong. on Tuberculosis* 1: 694, Part 2, 1908.

3. McCann, W. S., and Barr, D. P.: *Clinical Calorimetry*, XXIX, *The Metabolism in Tuberculosis*, *Arch. Int. Med.* 26: 663 (Dec.) 1920.

the maintenance of nitrogen equilibrium. There are losses of protein in the sputum, but according to Lanz⁴ they are not likely to exceed 7 gm. a day. Muscular work, of course, calls for an added supply of energy. Accordingly, when the activity of the disease has subsided, the total calories in the diet should be raised to meet the requirements of the patient as his muscular activity increases. On the basis of these findings it should not be difficult to epitomize the dietotherapy of tuberculosis more successfully than ever before.

THE MANAGEMENT OF CARBON MONOXID ASPHYXIA

The menace of carbon monoxid to human welfare is all too frequently being emphasized in the instances of poisoning with illuminating gas, which is rich in this component, as well as with the products of incomplete combustion of hydrocarbons in the industries. The automobile, with its exhaust of partially oxidized gases, has served to add to the dangers, notably in closed or poorly ventilated spaces like garages. The physiologic aspects of the danger are beginning to be well understood. Carbon monoxid competes with oxygen when these gases are in the presence of the oxygen-carrying respiratory pigment hemoglobin. Carbon monoxid combines with hemoglobin with an affinity about three hundred times as great as that of oxygen for hemoglobin. Consequently, the oxygen-carrying power of the blood may be seriously interfered with, so that an anoxemia comparable with what is observed in asphyxia may ensue.

Reparation and release from the condition of anoxemia must speedily be secured if the danger of carbon monoxid poisoning is to be overcome. The objectionable gas can be dissociated from hemoglobin by the prolonged action of oxygen, particularly if the latter is at unusual concentration and pressure. To accomplish such displacement in a practical way, however, is not always easy. Henderson has pointed out, as the result of investigations by Haggard,⁵ that during the development of carbon monoxid asphyxia there is vigorous hyperpnea, and that thereafter, probably owing to deficient oxygenation and other causes, there is a diminished production of carbon dioxid. As a result of deficiency of carbon dioxid in the blood, asphyxiated animals when restored to pure air exhibit for half an hour or more a very marked depression of breathing. The rate of elimination of carbon monoxid is correspondingly slow. The condition of tissue asphyxia is thus continued, although the body is surrounded by fresh air. It is suggested that this post-gassing period of continued asphyxia may be of critical importance in inducing subsequent structural degenerations and functional impairments.

Obviously, the administration of oxygen in any concentration can be of little value if the respiratory function, on which its transfer to the blood pigment depends, is tremendously retarded. Haggard⁶ has recently demonstrated, in connection with his experiments at the Yale University School of Medicine, that inhalations of carbon dioxid, itself an essentially inert gas, greatly increase the pulmonary ventilation, as has long been known, and consequently hasten the removal of carbon monoxid. By the administration of carbon dioxid in moderate concentration along with air or oxygen, death from respiratory failure may be prevented. Inhalation of oxygen plus carbon dioxid is far more effective than either gas alone; for the augmented breathing allows the oxygen to effect a rapid displacement of carbon monoxid from the blood. Functional restoration is correspondingly accelerated. The question has been raised as to whether carbon monoxid owes its toxicity solely to the fact that by union with hemoglobin it interferes with the oxygen-carrying capacity of the blood. Mathews,⁷ for example, assumes that the gas unites with other oxygen receptors as well as those of hemoglobin, and thus it may act directly on tissue cells. In either event, however, a device for securing maintained increased pulmonary ventilation would tend to bring the desired benefit.

NOSTRUM EXPLOITATION OF THE FOREIGN BORN

Under the title "Render Unto Caesar," THE JOURNAL for February 5 mildly criticized a portion of the excellent report of the Hospital and Health Survey of Cleveland for its failure to evaluate the part that the American Medical Association has played in giving the public the facts on the nostrum evil and quackery. The report, while it did casually state that the Association has "prepared and published a series of pamphlets on nostrums and quackery for the use of the public," dismissed the subject with the comment that "these have a limited circulation among those who least need their warning." Dr. Haven Emerson, who headed the Survey, has the following friendly comment to make on the editorial:

"Yes, indeed, 'Render unto Caesar' but are not the quoted sentences just, when read from the point of view of the great outside, measured by the 110,000,000 people of these United States instead of from the inside, the 150,000 physicians of the country? A million pamphlets and books in fifteen years may have reached most of the physicians and a few of their patients, who, we may believe, needed them least, being probably already convinced. In the ten years prior to 1915 there arrived at the port of New York 7,638,555 immigrants, chiefly of foreign birth and tongue. The American Medical Association pamphlets were in English and failed to reach those especially needing protection. Is not a circulation of one million in fifteen years or 66,666 a year fairly called a limited circulation, and has not the distribution been among those

4. Lanz: *Deutsch. Arch. f. klin. Med.* **56**: 619, 1896.

5. Henderson, Yandell, and Haggard, H. W.: Elimination of Carbon Monoxid from Blood After a Dangerous Degree of Asphyxiation; Therapy for Accelerating Elimination, *J. Pharmacol. & Exper. Therap.* **16**: 11 (Aug.) 1920; abstr. *J. A. M. A.* **75**: 1024 (Oct. 9) 1920.

6. Haggard, H. W.: The Elimination of Carbon Monoxide and a Method of Acceleration, *Proc. Soc. Exper. Biol. & Med.* **17**: 205 (May 22) 1920.

7. Mathews, A. P.: *Physiological Chemistry*, Ed. 3, New York, William Wood & Co., p. 495.

who least needed the warning? Come now 'Caesar', what about it?

"In a thorough and sympathetic study in Cleveland no instance was found of an editor of a foreign language newspaper, or member of advertising men's clubs¹ or member of foreign tongue social or industrial groups, who had seen or heard of the propaganda for reform of the American Medical Association. Yes, *limited* is the right word as almost all professional publicity is limited to those who want it, not spread among those who need it.

"I am proud to be one of a membership which has conceived, supported and endorsed the altruistic, intelligent and very hopeful and encouraging activities of the 'Propaganda for Reform.' I am humble in the face of the amazing inadequacy of the work of our profession in making our facts effective. As diagnosticians in the field of community health we of the Survey Staff found that the propaganda for reform had made no more impression on the traffic in nostrums among the poor foreigners of Cleveland, than did our comments on the murky soot-laden air of the city affect the complacency of its manufacturers and merchants.

"THE JOURNAL speaks for itself and proudly and justly so. The Survey happened upon a public whom THE JOURNAL had not reached."

In view of the thousands of inquiries on nostrums and quacks that THE JOURNAL receives from laymen who are sufficiently interested in the subject to write such letters, it is hard to believe that the information sent out by the Association goes wholly, or even in the main, to those "who least need" it. It is readily granted that the foreign-born who are unable to read English need the material which the American Medical Association has spent hundreds of thousands of dollars to procure and disseminate in the language of America. It is not admitted, however, that the Association is under moral obligation to go to the enormous added expense of translating this material into a dozen or a score of foreign languages for the purpose of putting it into the hands of those who cannot—and in some instances will not—read English.

THE JOURNAL has received many letters from American physicians of foreign birth who, recognizing the way in which the recent arrivals from their fatherland are exploited, have written for—and received—Propaganda material to pass on to the foreign-born. Such educational work among the aliens who do not read English has, in practically every instance, been carried on by physicians, Fellows of the American Medical Association, and, as stated, with the material furnished by the Association.

No discussion of the exploitation of the non-English speaking alien can ignore the problem of the foreign language press. Many thinking Americans hold that the failure of the "melting pot" to fuse the various elements in our national life is due in no small degree to the perpetuation of old world languages and nationalism by means of the foreign-language press. Whether this be true or not, it is a demonstrable fact that the non-English speaking alien is exploited chiefly by those

of his own nationality and through the medium of his own tongue. With many honorable exceptions, the advertising ethics of the foreign-language press of the United States today is that of the low-grade English-language newspaper of fifteen or twenty years ago. Many of the foreign-language publications have accepted the scum of medical advertising discarded by the English-language press of the country. The proponents of the foreign-language press in the United States declare that these publications fill a need and are a valuable asset in the Americanization of the alien. Whether or not this is true, it is a fact that this same foreign-language press exploits the foreign born and, in sharing the profits of quackery with the fakers does about all that humanly can be done to break down the confidence of the alien in the printed word.

Dr. Emerson says that in the Cleveland Survey no instance was found of an editor of a foreign-language newspaper who had seen or heard of the Propaganda for Reform of the American Medical Association. If the advertising standards of the foreign-language press in Cleveland are no higher than those of the general run of that press throughout the country, it may easily be surmised that no great effort was made on the part of such editors to learn of the work of the Propaganda department. There are more than 700 physicians in Cleveland who read THE JOURNAL, and at least a substantial proportion of this number could and undoubtedly gladly would have told the editor of a foreign-language paper about the Association's campaign against quackery and fraud in medicine. The Division of Health of the Department of Public Welfare of Cleveland has been in constant touch with the work of the Propaganda department for several years. Obviously a Cleveland editor looking for reliable information on the "patent medicine" evil might easily have learned from local sources where to go for it. Moreover, a little more than three years ago a complete set of the Propaganda publications was donated to the western headquarters of the American Association of Foreign-Language Newspapers. In thanking the Association for the material, that organization expressed surprise at the scope of the work and declared that the books and pamphlets would be held in its western office "for the use of all our publishers at all times."

The exploitation by quacks and nostrum vendors of the non-English speaking alien will cease only when the foreign-language newspaper and the foreign-tongue social or industrial groups give to the alien the information which the medical profession, through its organization, has prepared and widely disseminated in the language of America. The financial burden voluntarily assumed by the American Medical Association to carry on its campaign of education on the nostrum evil and quackery is already a heavy one, even though confined to the English speaking and reading public. To enlarge its scope to cover the field

1. In 1916, the Cleveland Advertising Club, through the secretary of its "Better Business Commission," was put in touch with the American Medical Association and received all of the material issued by the Association on the nostrum evil and quackery. Since that time not a week has passed that up-to-date material on the same subject has not been sent to this Commission.—Ed.

of the non-English speaking peoples of this country, including, as it would, the translating and duplicate printing of all of its material into many languages—such a task would call for the purse of a Croesus.

Current Comment

PHARMACOLOGY OF ARSENICALS

The Public Health Service some time ago¹ warned against the use in syphilis of new arsenicals which are not related to arsphenamin; it was stated that a number of such were being sold with unwarranted claims as to their value. At least three such arsenicals have in recent years been the subject of some exploitation for use in this disease: sodium cacodylate, the sodium salt of methyl arsenic acid ("Arrhenal") and the sodium salt of ethyl arsenic acid ("Mon-Arsone").² As regards the first two, Castelli showed several years ago that neither has any action on experimental trypanosomiasis and spirochete infections; careful clinical observations in this country have confirmed the inefficacy of sodium cacodylate in human syphilis.³ Voegtlin and Smith⁴ of the Hygienic Laboratory have now shown in animal experiments that ethyl arsenic acid ("Mon-Arsone") is devoid of any practical trypanocidal action. Thus the "therapeutic ratio" (the ratio of the minimal effective dose to the lethal dose) was about 1, that is, it was effective therapeutically only in approximately fatal doses; the therapeutic ratio for arsphenamin in similar conditions was 17, and that of neo-arsphenamin, 28. In fact, the conditions with ethyl arsenic acid were no more favorable than were those with arsenous acid (the active constituent of solution of potassium arsenite), although it was far less poisonous. The validity of such experiments in determining the probable value of drugs in human syphilis cannot be questioned:⁵ it was by such experiments that Ehrlich and his co-workers found two or three of six hundred and six arsenic preparations studied to be of value, and of the next three hundred or more studied only one (neo-arsphenamin) worthy of trial in human medicine. The time has passed when a high arsenic content of a compound and a low toxicity, and a number of cases of apparent clinical improvement, can be assumed to indicate that a drug has any real value in the treatment of syphilis. Many organic compounds of arsenic as well as other drugs may cause temporary or apparent improvement in syphilis, but to date only those related to arsphenamin have proved of real value and comparatively safe. Others which had some real value proved to have dangerous side effects; readers will recall the history of arsanilic acid ("Atoxyl" or "Soamin") and its acetyl derivative ("Arsacetyl").

1. Warning Against Untried Medicaments, *J. A. M. A.* 74: 1654 (June 12) 1920.

2. Wright, B. L.; Kennell, L. A., and Hussey, L. M.: *M. Rec.* 97: 607 (April 10) 1920.

3. Nichols, H. J.: Salvarsan and Sodium Cacodylate, *J. A. M. A.* 56: 492 (Feb. 18) 1911.

4. Voegtlin, Carl, and Smith, H. W.: *J. Pharmacol. & Exper. Therap.* 16: 449, 1921.

5. Compare Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: *Am. J. M. Sc.* 150: 25 (July) 1920.

A SPANISH MEDICAL PHILOSOPHER

"Chacharas de Café," a book of small talk of the "coffee house," has recently appeared in Madrid under the authorship of Ramón y Cajal, the dean of Spanish physicians, known in Spain as a statesman of no minor talent and internationally noted as a neurologist. It is reminiscent of "The Autocrat of the Breakfast Table" of our own Oliver Wendell Holmes. The satirical epigrams are impressive of the quick repartee of youth rather than of the irony of old age. Naturally some of the epigrams are medical. Here are a few:

Of all men, physicians and playwrights alone possess the rare privilege of charging money for the pain they inflict on us.

Thinkers, who devote themselves constantly to the creation of thoughts, become finally as those multiparas who, exhausted by so much childbearing, suffer from varicosities and deformities. They end by suffering from varices of the brain and becoming useless before their time, so far as their creating capacity is concerned.

I consider the deafness of old age a blessing. It permits man to end his life in comparative peace, without hearing the voices of those human vultures, represented by heirs and enemies, which seem to say, "Old thing, when are you going to die?"

What would be man if described by monkeys? Probably an interesting case of apish degeneration caused by his unfortunate habit of talking and thinking.

There are many physicians who have led diversified careers. Cajal is an example of greatness in many and varied activities.

MEDICAL COLLEGES AND PUBLIC HEALTH EDUCATION

In a recent article,¹ the late Dr. William T. Sedgwick suggested a method which he thought might induce more students to qualify for work as public health officers. His suggestion was that medical schools provide special courses in public health parallel to the clinical years of the medical course so that, after completing two years in the medical school, the student may either continue in medicine or change to the two-year public health course leading to the degree of Doctor of Public Health. The author evidently got the suggestion of an arrangement—to which he also referred—made at the Medical School of Harvard University for a degree of Doctor of Medical Science in which students who have completed the first two years of the medical school may, if they desire, devote the last two years exclusively to one of the medical sciences. Schools of public health have already been established in connection with eight of our leading medical schools, but none of them has attracted more than a comparatively few students. Some plan such as this suggested by Dr. Sedgwick may prove beneficial if it leads to a closer relationship between the courses in public health and the regular medical courses, by which larger numbers of students will have their attention called to the opportunity of specializing in public health work rather than going on into medicine. Under the plan proposed, all students would follow a definite course of study until the end of their sophomore year, when each would choose the particular line of work

1. Sedgwick, W. T.: *Modern Medicine and the Public Health*, *Pub. Health Rep.* 36: 109 (Jan. 28) 1921.

for which his ability or taste might qualify him. The plan will not add materially to the number of public health officers, however, unless efforts are made to inform prospective students regarding the large opportunities for service in public health work, and unless provision is made for increasing the financial rewards for such service.

ATTACKING MISSOURI PRACTICE LAW

In practically all states, including Missouri, the licensing boards have authority under the medical practice act to determine what medical schools are "reputable" or in "good standing." In the legislature of Missouri, however, a bill has been introduced seeking to amend the medical practice law by striking out the word "reputable," and inserting the words "legally chartered." This bill, it is claimed, was introduced in the interests of a low-grade medical school in Missouri from which the board withdrew recognition a few years ago, and which is reported as not recognized by the licensing boards of forty other states. The change sought by this bill would not only be a retrogressive step but also would make Missouri a dumping-ground for the graduates of inferior institutions who cannot secure licenses in other states. Furthermore, it would force the board to admit to its examinations the graduates not only of this low-type institution of Missouri but also of many others existing in this and other states, all of which, under our notoriously inadequate educational safeguards, have been "legally chartered." Any group of men may obtain a "legal charter" for a medical school; it requires much more—money, buildings, laboratories, expert teachers and clinical material—to establish one that is reputable.

THE TISSUES IN DIABETES INSIPIDUS

The problem of the therapy of the form of chronic polyuria more commonly designated as diabetes insipidus—a term sufficiently misleading to deserve omission from the nomenclature of medicine—has come into prominence anew through the discovery of the effects of pituitary extracts on the symptoms of the disorder. There are doubtless cases in which a largely increased volume of output of urine is dependent on an augmented intake of fluid, that is, on a primary polydipsia. The polyuria is a secondary phenomenon in these instances. Such patients show a pronounced change in the make-up of the urine as soon as the water intake is considerably restricted. The more typical patients, however, fail to eliminate a more concentrated urine even when such restrictions are enforced. The volume may be somewhat lessened, but its strikingly low concentration will be scarcely altered. A low specific gravity of the fluid is an ever present feature. For this reason a number of the more prominent students of such chronic polyurias have ascribed the essential disturbance to an inability on the part of the kidneys to secrete a concentrated urine. The pathologist has furnished little if any definite morphologic evidence on the basis of which the primary cause of diabetes insipidus can be assigned to the renal structures. No char-

acteristic lesions have been described, and the type of polyuria under discussion has not been observed in association with recognized renal defects or diseases. It is interesting, therefore, to learn that emphasis has latterly been placed on other tissue factors in the genesis of the urinary symptoms. Thus Veil,¹ of the German medical clinic which existed at Strasbourg before the close of the war, has furnished indications of the inability of the organism of certain patients to retain its normal quota of water. The tissues tend to become exhausted of their store of water with unusual ease. Doubtless the functions of the inorganic components and notably the chlorids, in the osmotic and other performances of tissues and fluids, are peculiarly disturbed. The precise nature of the anomaly just mentioned, if indeed it occurs, remains to be elucidated. But with the transfer of the center of interest from the kidneys to the tissues it is conceivable that internal secretions, hormones, from the pituitary or other structures may affect the water exchange and stability of the tissues rather than the excretory epithelium. The new views will at least serve for a time to focus attention elsewhere than on the kidneys alone in the study of the etiology of diabetes insipidus.

THE HUMOR OF TRANSLATION

An important factor in the making of a good translation is that the translator be equally facile in the use of the two languages concerned. When this facility is lacking there may be startling results, as in the case of the translator of a Spanish novel who wrote "It is a sad room," when "somber room" fitted the original. An even more infelicitous result is the recent appearance in the London *Lancet* of a comment describing some new efforts at housing to be conducted in Paris. We quote:

There will be three streets with houses six storeys high, but the houses will be so placed and the space around so spacious that all the walls will be exposed daily to direct rays of sunlight. They will contain 628 tenements and there will be a large central square of playground. Of these 300 will consist of a kitchen and three or four rooms and 200 of a kitchen and two rooms. Each room will measure from 11 to 13 square metres. Then there will be 100 *cabinets* where the tenants can take *douches* [Italics ours].

This translation from the French is proof of the fact that a bathroom and a bath by any other name may not sound quite discreet.

1. Veil, W. H.: Ueber intermediäre Vorgänge beim Diabetes insipidus und ihre Bedeutung für die Kenntnis vom Wesen dieses Leidens, *Biochem. Ztschr.* 91: 317 (Nov.) 1918.

The Hospital Pathologist.—To be of the greatest value to the hospital the pathologist should be competent. This implies, not necessarily, an omniscience in regard to matters of technic, but rather the ability to organize, to utilize, and to correlate the work of the laboratory with that of the hospital. He should, of course, be well trained in laboratory work in general and competent to supervise and direct its performance, which, necessarily, implies a broad knowledge of technic in general. Above all, he should be competent to interpret the reports in their relation to the particular patient. To do this he must be a trained clinical observer as well as a pathologist; in other words, his education must be well grounded and complete.—R. A. Kilduffe, *Hospital Progress* 2:45, 1921.

Association News

THE BOSTON SESSION

Appointment of Subcommittee to Arrange for Reunions of Medical Veterans

The Local Committee on Arrangements announces that a subcommittee, of which Dr. Beth Vincent is chairman, has been appointed to cooperate with medical veterans in arranging for reunions to be held during the coming annual session of the Association. Already those physicians who during the World War were assigned to the base hospital at Camp Wheeler are arranging for a reunion, under the direction of Dr. A. F. Wheat, 944 Elm Street, Manchester, N. H., who would like to hear from physicians who were posted at Camp Wheeler in order that a detailed announcement may be forwarded.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

New Health Officer.—Dr. George C. Marlette, Bay Minette, has been appointed full-time health officer of Baldwin County.

Hospital Additions.—The new annex to St. Margaret's Hospital, Montgomery, under construction for some months, has been completed and opened for the reception of patients. The addition is four stories in height and contains accommodations for forty-one patients, together with six operating rooms.—The Andalusia City Hospital is undergoing extensive alterations.—Extensive improvements have been completed at the Covington County Hospital.

Court Rules Against Health Officer.—Dr. Judson D. Dowling, city health officer of Birmingham, was recently fined \$50 and costs in the Jefferson County Court of Misdemeanors, following conviction on charges of false imprisonment preferred by Dora Glass and Gladys Harden. The complainants had been confined to the city jail as venereal disease suspects on order of the health officer under authority of the city vice ordinance. Judge Abernethy ruled that the city ordinance gave no authority for the confinement of the women in jail without their consent where no criminal charge had been preferred against them, and that the proper place for their confinement should have been a hospital or other specially equipped detention home. An appeal was taken from this decision.

ARIZONA

Tuberculosis Sanatorium.—A project for the erection of a large tuberculosis sanatorium for charity patients, at an estimated cost of \$2,000,000, has been started by citizens of Casa Grande. Subscriptions totaling \$200,000 and a donation of 320 acres of land have been received in the preliminary drive for funds. The institution will be known as the Universal Tuberculosis Sanatorium.

Phoenix Physicians' Exchange.—A physicians' exchange has been established at Phoenix. The exchange keeps a record of the movements of each of its medical members so that any physician may be reached on short notice. Accident calls are referred to the exchange so that physicians and ambulances may be supplied promptly whenever needed. The exchange also maintains a classified register of nurses.

CALIFORNIA

Personal.—Dr. Charles Christal, San Luis Obispo, suffered severe injuries, including a broken scapula, when the automobile in which he was riding ran over a steep embankment.—Dr. Winfield Scott Hall, Chicago, has been delivering a series of lectures in southern California on social and home problems.

Popular Health Lecture.—The third of the current series of popular medical lectures under the auspices of the Council

of Social and Health Agencies of San Francisco was delivered at Lane Hall, February 11, by Dr. Olga Bridgman, on "The Educational Problems of the Defective and Atypical Child."

Hospital News.—Work has begun on the construction of a new tuberculosis hospital on the grounds of the Soldiers' Home, near Los Angeles. The new institution will cost approximately \$520,000 and will have accommodations for 250 World War veterans suffering from tuberculosis.—Glendale Research Hospital, a cooperative institution erected at a cost of \$100,000 by residents of Glendale, will be opened for the reception of patients about March 1.—A new private ward of fourteen beds for children has recently been opened at Lane Hospital, San Francisco, and the clinic wards for infants and children have been completely remodeled. The new wards are arranged on the cubicle plan with glass partitions between the beds.—A new hospital, planned primarily for the use of the members of the Fresno labor unions, is to be erected in Fresno at an approximate cost of \$150,000.—The California Hospital, Los Angeles, was reopened for the reception of patients, February 6, under the management of the Lutheran Hospital Society. The institution will hereafter be known as the California Lutheran Hospital.

COLORADO

Meeting of Sanatorium Associations.—The El Paso Sanatorium Association and the Denver Sanatorium Association held a joint meeting in Denver, February 26. The scientific program was presented in the lecture room of the Denver City and County Medical Society at 2:30 p. m., and embraced an exhaustive discussion on tuberculosis.

CONNECTICUT

New President of Yale University.—James Rowland Angell has been elected president of Yale University, to succeed Arthur Twining Hadley at the close of the present university year. The announcement of the election of Dr. Angell was made by the Yale Corporation to the University Council, February 19. Dr. Angell is a son of the late President Angell of the University of Michigan and a graduate of that university in the class of 1890. He served at the University of Chicago as assistant professor, associate professor, professor, head and senior dean of the department of psychology, as dean of the university faculties, and as acting president until his election as chairman of the trustees of the Carnegie Corporation in 1920. In 1914 he was exchange professor of psychology to the Sorbonne in Paris.

FLORIDA

Sixty Under Pasteur Treatment.—It is reported that sixty residents of Tampa have recently been bitten by dogs suspected of having rabies, and have taken the Pasteur treatment. Orders have been issued by the city commissioners for the immediate impounding of all dogs and cats running at large and for the closing of schools until all danger is removed.

Free Radium Treatment.—Through arrangements between the state board of health and Dr. Gerry R. Holden, Jacksonville, certain classes of cancer patients will receive free radium treatment. Such cases will be limited to inoperable cancer in women where the diagnosis has been made by a reputable physician. Applicants must be residents of Florida, and must be certified as indigent by the commissioners of the county in which they reside.

GEORGIA

New County Society.—The Talbot County Medical Association was recently organized with the following officers: president, Dr. J. B. Douglas, Talboton; vice president, Dr. J. E. Peeler, Woodland, and secretary-treasurer, Dr. C. C. Carso, Talboton.

Bathey Memorial.—Committees of Rome physicians and members of the women's auxiliary of Floyd County Medical Society are conducting an active campaign for funds for the erection of a memorial to Dr. Robert Bathey. It is anticipated that the memorial will be in place in time for an unveiling by May 4, in connection with the annual meeting of the Georgia State Medical Association.

Public Health Course.—An institute for public health workers will be held by the public health school of the University of Georgia Medical College, in cooperation with the state health department, at Augusta, from February 21 to

March 4. The faculty includes Dr. C. C. Bass, New Orleans, Dr. W. S. Rankin, Raleigh, N. C., Dr. E. C. Levy, Richmond, Va., and Dr. L. L. Lumsden, U. S. P. H. S.

ILLINOIS

Fined for Practicing Without a License.—It is reported that Mrs. Francis Kleine of Granite City was arrested by the Department of Registration and Education for practicing midwifery without a license. On February 10 she was found guilty and fined \$25 and costs.

County Society's Action on Hospital Standardization.—At the regular meeting of the Peoria County Medical Society, February 15, the following recommendation was adopted: "We recommend that if it be deemed wise and necessary to standardize the hospitals that it be done by a representative authorized committee from the state medical society working with a similar committee from the American Medical Association, in collaboration with the hospital authorities."

Chicago

Society Organized.—The Physician Anaesthetists of Chicago have organized and have elected the following officers: president, Dr. Isabella C. Herb; vice president, Dr. T. Edward Costain, and secretary-treasurer, Dr. Frances E. Haines.

Officers of Tuberculosis Institute.—At a meeting of the Chicago Tuberculosis Institute, February 18, Dr. Ethan Allen Gray was elected president, Dr. Thomas E. Roberts, vice president, and Drs. Robert H. Babcock, Max Biesenthal, Paul C. Fox, William A. Evans, William Allen Pusey, Stephen R. Pietrowicz, David J. Davis and James A. Britton, and Prof. Edwin O. Jordan, members of the medical advisory board. Dr. William A. Evans was appointed a member of the executive committee.

INDIANA

Antivivisection Bill Killed.—The bill introduced by Representative G. Cal Shultz, prohibiting animal experimentation, has been killed in committee.

"Miracle Man" in Indiana.—According to newspaper reports, Harry Mays, so-called miracle man, who was recently reported as having been arrested and requested to leave Chicago, has opened offices in West Hammond.

Committee Report on Nurses' Bills.—The house committee on state medicine and public health voted to report unfavorably on the Kamman bill, but agreed to report for passage, with some amendments, the compromise bill later introduced by Representative Harrison. The Harrison bill provides for the licensing as "trained attendants" student nurses with a year's training in a hospital training school or those who have had approved training in the care of the sick; the latter qualification may be passed on by three reputable physicians.

Annual Registration of Physicians.—A bill has been introduced in the house by Representative Kingsbury providing that all licensed physicians of the state shall pay an annual fee of \$2 for a certificate, the fund so raised to be placed to the credit of the state board of medical registration and examination for use in suppression of the practice of medicine by those not legally authorized. Dr. David Ross, Indianapolis, and Dr. William N. Wishard, Indianapolis, president and chairman of the legislative committee, respectively, of the State Medical Association, spoke before the committee on state medicine, February 10, in support of the measure.

IOWA

Society Honors Member.—The Monroe County Medical Association held a banquet at the Commercial Club, Albia, February 3, in honor of Dr. Charles B. Powell. Dr. Powell recently completed the fiftieth year of active medical practice in Monroe County.

MAINE

Bowdoin Offered Fund.—Mr. Hugh Chisholm, Portland, has offered to donate to the Bowdoin Medical School \$50,000 for the erection of a building on condition that the school obtain an income sufficient to maintain it among Class A schools. A committee of the governing board of the college has recommended acceptance on a further condition that the college convey to the school all land, buildings and equipment which have been used exclusively for the medical school. President Kenneth C. M. Sills has announced that a bill to place the medical school under state control will soon be submitted to the legislature.

MARYLAND

Selection of Physicians for Municipal Appointment.—Drs. Winford H. Smith, James M. H. Rowland, and Wade Hampton, have been appointed members of a medical advisory commission of the Baltimore civil service commission to supervise the selection of physicians for municipal appointment in public health offices.

Endowment Fund for Nursing School.—A campaign to raise an endowment fund of \$1,000,000 for the Johns Hopkins Hospital School of Nursing has been started by alumnae of the institution. Miss Adelaide Nutting, member of the first class graduated and at present head of the department of nursing and health of Teachers' College, Columbia University, is chairman of the executive committee. Regional committees will be organized throughout the United States under the direction of Miss Elizabeth Fox, director of public health nursing for the American Red Cross in Washington.

MASSACHUSETTS

Cancer Hospital Addition.—The Harvard Cancer Commission is erecting a new building adjoining the Collis P. Huntington Hospital, Boston, for the installation of a special roentgen ray and radium plant. Life insurance companies of Boston have contributed more than \$30,000 toward the cost of the new building.

Public Health Service Hospital.—The tuberculosis sanatorium now nearing completion at Rutland has been leased for a term of years by the U. S. Public Health Service. Within a short time the institution will be enlarged to accommodate 100 patients, and it is planned ultimately to have accommodations for 300.

Lethargic Encephalitis.—Lethargic encephalitis has been declared a reportable disease by the Massachusetts Department of Public Health. A special pamphlet on the disease will be distributed to physicians throughout the state and further investigation of the incidence, etiology, and mode of its transmission will be encouraged. Reports heretofore have been voluntary and about seventy-five cases—all adults except five—have been investigated by the department. Among twenty-eight cases cared for in Boston hospitals, there has not been a single instance of secondary infection, of multiple cases in any household, or of localized grouping.

MICHIGAN

Dermatology Society Organized.—The Detroit Dermatological Society was organized, January 10, with Dr. Andrew P. Biddle as temporary president and Dr. Chester A. Doty, temporary secretary.

Inspection of Canned Food.—As a result of the recent deaths from botulism at the Blodgett Memorial Hospital, Grand Rapids, the state food and drug department has assigned fifteen inspectors to the larger cities in the state to inspect canned food.

Centralization of Public Health Nursing.—All public health nurses in Michigan will be under the general supervision of the director of child hygiene and public health nursing, by an agreement between the American Red Cross, the state anti-tuberculosis association and the state department of health. A standing committee composed of representatives of these organizations will formulate the policies to be adopted.

NEW HAMPSHIRE

Banquet of Societies.—The Manchester Medical and Dental associations gave a joint banquet at the Odd Fellows' Hall, February 1, at which Dr. Robert B. Greenough, Boston, spoke on "Radium in the Treatment of Malignant Disease."

NEW YORK

Typhus Fever in Cortland.—The state department of health reports that three cases of typhus fever have been discovered in Cortland, in three children, who with their mother arrived from Naples, January 5.

Rulings of Narcotic Commission Protested.—A resolution of protest against the recent rulings of the state narcotic commission requiring that prescriptions for narcotic drugs must be made out in triplicate on the department's official blanks was passed at a mass meeting of the members of the medical, dental and pharmaceutical professions of Kings, Queens and New York counties, held in Brooklyn, February 9.

Registration of Drug Addicts Waived.—The commissioner of the state department of narcotic drug control has repealed the regulation requiring the registration of all drug addicts as the necessity for such registration has been eliminated by the new regulation prohibiting the use of unofficial blanks by physicians issuing prescriptions for, or administering or dispensing cocaine, opium or their derivatives, and requiring that data concerning prescriptions for habitual users be inserted on the official blanks.

New York City

Heart Relief Association Meeting.—The Association for the Prevention and Relief of Heart Disease held its annual meeting at the New York Academy of Medicine, February 7, when Dr. Haven Emerson discussed the activities and plans of the association.

Medical Library Association.—At a joint meeting of the Medical Library Association of Brooklyn and the Medical Society of the County of Kings, February 15, Col. Fielding H. Garrison, librarian of the Surgeon-General's Office, read a paper on "Community Interests from the Standpoint of the Medical Library."

Senate Appropriates for Quarantine Station.—The United States Senate has appropriated \$200,000 to be expended by the Public Health Service in equipping the quarantine station at Rosebank, Staten Island, for dealing with the immigration problem at the Port of New York. Four medical officers of the Public Health Service have been ordered to New York immediately.

List of Reportable Diseases.—The Department of Health of the City of New York, at its meeting, January 27, adopted resolutions amending the sanitary code dealing with the reporting of communicable diseases. The new list of diseases that must be reported to the department within twenty-four hours from the time the diagnosis is made includes acute anterior poliomyelitis (infantile paralysis), anthrax, Asiatic cholera, botulism, diphtheria (croup), dysentery (epidemic), lethargic encephalitis, epidemic cerebrospinal meningitis, glanders, suppurative conjunctivitis, hookworm disease, leprosy, malarial fever, measles, mumps, paratyphoid fever, plague, pulmonary tuberculosis, acute lobar pneumonia, bronchial or lobular pneumonia, influenza, rabies, rubella (German measles, röteln), scarlet fever, epidemic septic sore throat, smallpox, tetanus, trachoma, trichinosis, tuberculous meningitis, typhoid fever, typhus fever, varicella (chickenpox), whooping cough and yellow fever.

NORTH CAROLINA

Scientific Society Meeting.—At a meeting of the Elisha Mitchell Scientific Society, held at the University of North Carolina, Chapel Hill, February 9, Dr. Edward J. Wood of Wilmington delivered an address on "Our Debt in Medicine to the British."

OHIO

Personal.—Dr. Reuben J. Erickson, Cincinnati, has resigned his position as resident medical director at the City Tuberculosis Sanatorium.

Fined for Manufacturing Medicine.—It is reported that Wee Hing, Toledo, was fined \$50 and costs on a charge of manufacturing medicine without a permit. Hing was manufacturing a preparation known as "lizard whisky."

First Aid Lectures.—A series of ten lectures on first aid, to which various industrial institutions of Hamilton have been invited to send representatives, was initiated, January 31, by a lecture delivered by Dr. Frank M. Fitton in the assembly hall of the Chamber of Commerce. Similar meetings will be held weekly until the full course has been delivered.

PENNSYLVANIA

State Antitoxin Station.—The Harrisburg Hospital has been designated as a state antitoxin distributing station by Dr. Edward Martin, state health commissioner, as a preliminary step to make all hospitals in the larger communities distributing centers.

Markleton Sanatorium to Be Closed.—The Secretary of the Treasury has ordered that the Markleton Sanatorium, which is being used for treating World War veterans suffering from tuberculosis, be closed at once, as the result of an unfavorable report made by a committee of tuberculosis specialists appointed by the U. S. Public Health Service.

Public Health Service Hospitals in Pennsylvania.—The Public Health Service has announced plans to increase the hospital facilities for ex-service men in Pennsylvania, particularly at Pittsburgh and Philadelphia. At Pittsburgh, the capacity of the Marine Hospital will be trebled by the addition of portable buildings, and later, by buildings of brick and tile construction. At Philadelphia, the Service has recently acquired from the Navy a large hospital with a capacity of from 400 to 500 for the care of ex-service men suffering from nervous and mental diseases.

Philadelphia

Personal.—Dr. Edward A. Leonard has resigned his position as assistant chief resident physician at the Philadelphia General Hospital.

Health Poster Contest.—The Philadelphia Health Council and Tuberculosis Committee has instituted a health poster contest in high schools for the purpose of securing attractive posters for spreading the message of good health throughout the city. The contest will close May 2, when cash prizes will be distributed to successful contestants.

SOUTH CAROLINA

Mental Hygiene Survey.—A mental hygiene survey of the state, sponsored by the child welfare commission, is being conducted by Dr. Victory B. Anderson of the National Committee on Mental Hygiene.

Personal.—Drs. William W. Fennell, Rock Hill, Harry H. Wyman, Aiken, Olin D. Busbee, Springfield, and William A. Tripp, Anderson, have been elected trustees of the South Carolina Medical College.

Special Tax to Aid Tuberculosis Fight.—The South Carolina Tuberculosis Association has framed a bill to be introduced during the present session of the general assembly authorizing a special tax levy by any county to raise funds for its anti-tuberculosis work.

Hospital Dedicated.—The Emma Moss Booth Memorial Hospital, Greenville, was dedicated with formal exercises, January 15. The hospital, built by the Salvation Army at a cost of \$250,000, from funds contributed largely by the owners and employees of the mills and factories of Greenville, has a capacity of seventy beds. The hospital will be temporarily restricted to the treatment of women and children.

WISCONSIN

Chlorin Plant Ordered.—The city of Sheboygan must install a chlorin plant by March 15, according to an order of the state board of health, which traced a number of cases of typhoid fever to the water supply derived from Lake Michigan.

Community Survey by Pupils.—As part of the health crusade in Iron River the civic class of the high school made a community survey, devoting special attention to the sanitary condition of the streets and alleys. Detailed reports, including maps and photographs, were made of the insanitary districts.

Nursing Education Bill.—A bill recently introduced in the state legislature proposes to place administration and control over the training of nurses in the hands of the state board of education, instead of the board of medical examiners as heretofore. Under provisions of the bill a committee on nursing education is provided, to be composed of representatives of the state nurses' association, the League of Nursing Education, the hospital association, the state medical association, and the public health nursing bureau. These associations are authorized to designate representatives of the committee who shall meet with the secretary of the state board of education.

CANADA

Appointments of Health Commission.—The Massachusetts-Halifax Health Commission has announced the following appointments for the extension of the clinical work at the commission's health center: Dr. Arabella MacKenzie to be director of the dental clinic for children of preschool age, Admiralty House Health Center; Dr. F. W. Tidmarsh to organize nutrition clinics at the Halifax and Dartmouth centers, and Dr. W. Alan Curry to organize posture clinics at the various centers.

Care of Indigents in Public Hospitals.—The province of Quebec has obtained legislation which empowers municipalities to pay \$1.50 a day for indigent persons cared for in the public hospitals. The law does not enforce the payment,

but provides for a voluntary annual contract, automatically renewable. Ninety municipalities have already signed such a contract, including Montreal. The hospitals receive the sick and notify the municipality. The latter is given eight days to accept or reject the obligation to pay for the specified individual. The *Union Médicale du Canada* urges that some similar provision should be made for orphans and the aged.

GENERAL

Drive for Student Nurses.—A drive for student nurses, for which there is an urgent need in the government hospitals, is being conducted by four national organizations, including the American Nursing Association, the National League of Nursing Education, the National Public Health Association and the American Red Cross. Arrangements have been made for speaking tours covering high schools and colleges as a means of interesting young women in this branch of service.

Congressional Tribute to General Gorgas.—As a tribute to the services and character of the late Gen. William C. Gorgas, the Senate has ordered that the remarks made at the memorial services in his honor, held at Washington, D. C., January 16, be printed. In requesting the Senate to preserve the tributes, Senator Thomas Heflin of Alabama remarked:

Mr. President, on the night of January 16, 1921, at the Pan American Building in this city, memorial services in honor of the late Gen. Gorgas were held under the auspices of the Southern Society of Washington, D. C. The eloquent and splendid tributes paid to Gen. Gorgas by Cabinet officers, other officials of the Government, and others, as well as by officials and diplomats of foreign countries, are worthy to be published and preserved in the archives of the Nation that he served so faithfully and well. It was his splendid skill and genius that freed the American Continent from the scourge and curse of yellow fever. He led in driving this yellow plague from the lakes and lagoons of Louisiana, and he destroyed it in the swamps and marshes of the Panama Canal Zone. He has rendered signal service not only to the people of America but to mankind the world over. This great man, born at Mobile, Ala., became not only a national but an international character.

Mr. President, to the end that the speeches and messages to which I have referred may be printed and preserved, I ask unanimous consent that they be ordered printed in the form of a public document.

Conservation of Vision.—The Eye-Sight Conservation Council of America with headquarters in New York City, was recently organized, and Mr. L. W. Wallace, New York, was elected president, and Dr. Cassius D. Wescott, Chicago, vice president. Drs. Frederick R. Green, Chicago, W. S. Rankin, Raleigh, N. C., Arthur L. Day, Washington, D. C., and Allan J. McLaughlin, U. S. P. H. S., Washington, D. C., are members of the board of counselors. The council has for its object the conservation and improvement of vision by arousing public interest in eye hygiene, especially as it pertains to defective vision and the protection of the eyes in hazardous occupations. Means to this end will include disseminating knowledge regarding optics; circulating information on the proper lighting of homes, schools, factories, offices, and private and public buildings; striving to promote periodic eye examinations, especially of schoolchildren and industrial workers, etc. The organization will conduct a nation-wide "save your sight" campaign to acquaint the public with the importance of eye conservation, and to urge eye examinations of schoolchildren, industrial workers, and clerks in stores and offices.

Bequests and Donations.—The following bequests and donations have recently been announced:

Beaverhead County, Mont., \$100,000, for the erection and equipment of a modern hospital, by the will of Martin Barrett, Dillon, Mont.

New York Skin and Cancer Hospital, Woman's Hospital, St. Mary's Free Hospital and Society for the Relief of the Destitute Blind, each \$1,000, by the will of Mrs. Eloise L. Breese Norris, New York.

Lenox Hill Hospital, New York, \$12,000, by the will of John B. Hasslocher, New York, and \$6,000, by the will of Annie Diehl, New York.

New York Foundling Hospital, \$2,000, by the will of Margaret Josephine Ramsay, New York.

St. Luke's Hospital, New York, \$5,000, by the will of Mary J. Odell, New York.

Presbyterian Hospital, Philadelphia, \$20,000, by the will of Ella McCord.

Methodist Hospital, Philadelphia, \$5,000, to establish a memorial bed to be known as the Mahlon R. Swartley and Family Memorial Bed, by the will of Mahlon R. Swartley.

Union Memorial Hospital, Baltimore, \$1,000, for endowment of a bed in memory of the men who served at Edgewood Arsenal during the World War, a donation from the National Society of United Daughters of 1812.

Mount Lawn Summer Retreat for Children; Port Richmond, Stapleton, New Brighton, and West New Brighton day nurseries; Staten Island, St. Vincent's, and Mt. Sinai hospitals; West New Brighton Home for the Ruptured and Crippled; Hospital for Deformities and Joint Diseases of the City of New York; Orthopedic Hospital and Dispensary; St. Rose's Free Home for the Relief of Incurable Cancer, New York Infirmary for Women and Children, and New York Eye and Ear Infirmary, bequests ranging from \$500 to \$15,000, by the will of Mrs. Mary Helen Finch, New Brighton, L. I.

LATIN AMERICA

Fellowship Exchange Between Chile and Uruguay.—The Chilean government has sent a delegate to Uruguay in order to establish an interchange of one year medical fellowships for students.

Ear and Throat Clinic in Public Hospital.—The *Brasil-Médico* mentions the recent organization of a clinic for diseases of the ear, nose and throat as part of the public health system of Rio de Janeiro. It is in charge of Dr. Gastão Guimarães.

Personal.—The Sociedad de Médicos of Bolívar City, Venezuela, has elected Dr. F. A. Rísquez of Caracas to the honorary membership left vacant by the death of Dr. A. Machado.—Dr. J. Barreiro, ex-director of the Spanish Sanatorium at San Juan, Porto Rico, has returned to Spain.

Quarantine in Peru.—The Peruvian government has decided not to enforce quarantine against ships arriving from countries which have national public health services. This rule will not apply to ships having on board yellow fever patients. Miss Goyeche, a well known philanthropist of Arequipa, has presented that city with a maritime quarantine station.

Practice of Medicine in Chile.—The Dirección General de Sanidad of Chile has issued supplementary regulations on the practice of medicine in that country. It is specified that medicine can be practiced only by persons graduated from the University of Chile, or entitled to practice by reciprocity agreements. So far Chile has established reciprocal relations only with Brazil, Ecuador and Uruguay.

FOREIGN

Cremation of Human Bodies.—According to a report of the Cremation Society of England 1,800 human bodies were cremated in Great Britain during 1920. Among the scientists of note whose bodies were cremated were those of Sir William Osler and Dr. Cecil Lyster.

Physician Placed in Charge of City Health Bureau.—A Munich exchange states that, for the first time, a physician has been placed at the head of the municipal public health system of Frankfort-on-the-Main. Dr. K. Schlosser, the new incumbent, has long been president of the local medical society.

Physician Members of Belgian Senate.—Prof. Jules Bordet to whom the Nobel prize in medicine was recently awarded, has been elected a member of the senate of Belgium from the Hainaut district. Prof. A. Depage is already a member of the senate. The *Scalpel* relates that the ambassador from the United States conferred on Professor Depage, January 25, the Distinguished Service Medal with a complimentary address which our exchange reproduces in full with a few words of appreciation of the honor paid to Belgium.

Insane Asylum Changed to Maternity Hospital.—The psychiatrists of France have been protesting vigorously against the recent decree to transform the Charenton Insane Asylum into a lying-in hospital. The *Encéphale* supplement says that this establishment has always been more or less the financial victim of the state, and quotes Esquirol's reply to a statesman to whom he was pleading for better support for the asylum. The statesman had said that the funds available should be applied to the prisons, but Esquirol rejoined that the prisons are filled with persons who have more or less deserved their fate, but "even you and I," he continued, "are not sure of not being sent to the insane asylum some day."

Congress for Comparative Pathology.—The second International Congress for Comparative Pathology is to convene at Rome, and the Italian committee in charge has informed its representatives in France that it intends to invite German pathologists to attend the meeting. The French committee has notified the Italian committee that it will refrain from attending if the representatives of the central powers are invited unless the German savants by some public statement repudiate "all solidarity with the government and the military chiefs in the antisocial acts committed by them during the World War (the manifesto of the ninety-three intellectuals, the deportation of young women and girls from Lille in 1916, the deportation of the wives of professors, holding them as hostages at the Holzminden camp in 1917, 1918, etc.)" The French committee states further that by refusing to take part in the meeting if the subjects of the central powers are invited, it conforms to the decision taken by the Royal Society of London in October, 1918, and ratified by the delegates from the scientific academies of the allied nations (Belgium,

Brazil, United States, Great Britain, Australia, Canada, New Zealand, South Africa, Greece, Japan, Poland, Portugal, Roumania, Serbia, and Italy) at Brussels, July, 1919.

Deaths in Other Countries

Dr. W. von Waldeyer, the Nestor of the professor in Germany, professor of anatomy at the University of Berlin until his retirement, author of numerous works on anatomy and physiology, aged 85.—Dr. N. Rodríguez Abaytúa, a prominent Madrid specialist in gastro-intestinal diseases and writer on general medicine, at one time president of the Academia Médico Quirúrgica Española, aged 66.—Dr. Pierret, formerly professor of psychiatry at the University of Lyons.—Dr. O. Daels of Ghent.—Dr. Ponson, mayor of Jupille, Belgium.—Dr. A. Fernández Chacón, professor of gynecology and obstetrics at Madrid until his retirement, president of the Spanish Gynecologic Society and member of the national council on public instruction.—Dr. F. Toledo de la Cueva of Madrid, on the editorial staff of the *Siglo Médico*.—Dr. A. Seelig, Königsberg, noted for works on diabetes, urology and nervous diseases.—Dr. R. Behla, Berlin, statistician and anthropologist, aged 71.

Government Services

Civilian Physicians to Address General Staff College

Surgeon-General Ireland has completed plans to have prominent physicians of the country deliver addresses before the General Staff College at Washington. Dr. Joel E. Goldthwait, Boston, and Dr. Thomas W. Salmon, New York, recently came to Washington to speak at the college.

Award of Distinguished Service Medal

Dr. Pierce Bailey, New York, who was chief of the division of neuro-psychiatry in the Surgeon-General's Office during the World War, has been awarded the distinguished service medal. The citation is now in the hands of Surgeon-General Ireland and will shortly be presented to Dr. Bailey at his home.

Solicit Applicants for Army Nurse Corps

The Army Medical Department is soliciting applicants to fill vacancies in the nursing corps of the Army, under arrangements which will give all applicants a three-year course of training at the Army School of Nursing. Appointments from states east of the Mississippi River will be to the Walter Reed Hospital, Washington, D. C., while applicants from the West will be sent to the Letterman General Hospital, San Francisco.

Membership of Medical Reserve Corps

The Reserve Corps of the Medical Department of the Army, according to the announcement of the Surgeon-General's Office, now includes 5,618 officers. Of this number two are brigadier-generals, 98 colonels, 401 lieutenant-colonels, 1,843 majors, 2,329 captains, and 945 first lieutenants. The total number of medical reserve officers on active duty in the Army at the present time is 51, consisting of 8 majors, 34 captains and 9 first lieutenants.

New Legislation for Medical Department

Because of the fact that the calendars of both houses have been filled with routine legislation the Surgeon-General of the Army has made few recommendations to Congress for revision of the regulations of the department. Only matters of urgent importance to the Medical Department have been presented, including a bill providing for the retirement and allowances for specialists. This measure provides that enlisted men of the sixth and seventh grades who are rated as specialists shall be retired with the rating and emoluments of a specialist. Another bill proposes an amendment to the law now limiting the expenditure for construction of a single permanent hospital to \$30,000, and fixing the amount at \$65,000, so that construction on Army hospitals can be continued without specific authority from the legislative branch of the government.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Jan. 28, 1921.

Election of Dr. Bazy to the Academy of Sciences

The Academy of Sciences recently elected Dr. Pierre Bazy, surgeon to the hospitals and member of the Academy of Medicine, as a corporate member in the section of medicine and surgery, to fill the vacancy caused by the death of Professor Guyon.

Action of Propaganda Committee on Social Hygiene

In a previous letter (*THE JOURNAL*, Aug. 7, 1920, p. 424) I announced the appointment of a propaganda committee on social hygiene and prophylactic education. At present this committee is making an urgent appeal to the public. It has put out posters in regard to syphilis and tuberculosis. In connection with the propaganda of hygiene in France, it is interesting to note a statement made by Dr. E. Roux, director of the Pasteur Institute, in his address before the general assembly of the Propaganda Committee. He said that several English and American physicians who came to France for the World War and lived in our cities and our rural districts had asked him how he would explain the fact that France, the country in which the fundamental discoveries of hygiene were made, applies them so little. Roux thinks that one of the principal causes for the backwardness of the hygienic movement in France is to be found in the national character. The individualism of the French people does not lend itself readily to general social movements or to sustained concerted efforts. Hygiene requires that an individual submit to discipline for the sake of the common welfare. We must learn to view disease not as a private affair, considering only the patient and his immediate surroundings, but as something affecting society as a whole.

The Coming Congress of the International Society of Urology

The Congress of the International Society of Urology will be held in Paris, July 5-6, 1921. The three questions on the order of the day are: 1. Nephritis with uremigenic syndrome; papers by Drs. Hogge, Liège; Horder, London; Foster, New York, and Teissier, Lyons. 2. Late results of treatment of traumatism of the ureter; papers by Drs. Kidd, London; Gardini, Bologna, and Pasteau, Paris. 3. Pyelography; papers by Drs. Lazio, Milan; Papin, Paris, and Waters and Young, Baltimore.

The Abuse of Narcotics

Dr. Paul Capelle has just been tried before the Court of Correction on complaint of the dean of the Faculty of Medicine. He was charged with having given to his clients (for the most part *artistes lyriques*) "accommodation" prescriptions for morphin. Dr. Capelle was fined 2,000 francs and given a prison sentence of fifteen months. At the same session of the court, a student of pharmacy was given a six months' prison sentence and several others received penalties varying from twelve to eighteen months in prison for trafficking in morphin or having it in their possession.

Death of Professor Bourquelot

The death of Professor Bourquelot, at the age of 70, is announced. He was professor of the pharmaceutical faculty of the University of Paris, a member of the Academy of Sciences, and vice president of the Academy of Medicine. Bourquelot was the author of numerous works, mainly on soluble ferments, diastases and methods of research for glucosids and sugars by the aid of these ferments; also on the

biochemical synthesis of glucosids and sugars. He recently contributed to the Academy of Medicine an interesting communication on the active principles of certain plants employed in popular medicine, together with researches on these, by the biochemical method. In this work he points out that the biochemical method makes it possible to prove that most plants formerly employed in medicine, which were not supposed to contain any active principle, in reality contain glucosids hydrolyzable by emulsin, and that, furthermore, such glucosids are extremely common in nature. He says in conclusion that, in the short space of a few years, by the aid of this method, sufficient work has been outlined to keep several generations of chemists and physiologists busy.

LONDON

(From Our Regular Correspondent)

Jan. 31, 1921.

Encouraging Vital Statistics

Provisional figures of the registrar-general for 1920 which have just been issued by the ministry of health are most encouraging. The birth rate for 1920 is the highest of the decade, the death rate is the lowest ever recorded, and the infant mortality is also the lowest recorded. Moreover, the number of births is the highest ever recorded and the number of deaths the lowest since 1862, when the population was only 20 millions. The figures for 1920 are:

	Birth Rate per Thousand of Population	Death Rate per Thousand of Population (Crude Rate)	Deaths Under One Year per Thousand Births
England and Wales	25.4	12.4	80
Ninety-six great towns, including London, with a population exceeding 50,000	26.2	12.5	85
148 smaller towns of populations from 20,000 to 50,000	24.9	11.3	80
London	26.3	12.4	75

The subjoined figures prove that our death rate has been falling steadily for years:

Period	Death Rate	Period	Death Rate
1871-1880	21.4	1916	14.4
1881-1890	19.1	1917	14.4
1891-1900	18.2	1918	17.6
1901-1910	15.4	1919	13.8
1911-1915	14.3	1920	12.4

The figures during the war years are based on civilian deaths and estimated civilian population. As our youth was largely absent, the figures given refer mostly to older persons and children, and so are better than they look. The figure for 1918 bears in addition the great influenza pandemic, which accounts for the rise to 17.6. The figure for 1920 shows the real trend of our mortality, which was lost sight of during the war. The same holds for infant mortality, as this table, of mortality at ages under 1 year per thousand births, shows:

Period	Mortality	Period	Mortality
1871-1880	149	1916	91
1881-1890	142	1917	96
1891-1900	153	1918	97
1901-1910	128	1919	89
1911-1915	110	1920	80

Medical Records of Insured Persons

The proposal of the ministry of health to have records of insured persons' ailments is, as stated before, arousing considerable protest from physicians and the lay press. The strongest protest yet made has come from the committee of the Cheshire panel physicians. It points out that the filling of the record-cards will result in considerable reduction in

the time available for the diagnosis and treatment of the insured. It refers to the large amount of clerical work required and the difficulty of keeping the envelop (this is intended to follow the patient through life) which will be liable to split as the records become extensive. It is stated that at least one hour a day must be given to the work. "It is literally impossible for a conscientious physician to spare the time for work of that character. The records will thus be faulty to a greater or less degree. Faulty records are worse than none, as the degree of error which may be drawn from them cannot be estimated." Turning to the ethical side of the question: "It is not the custom of the profession to divulge a patient's secrets or to commit them to publicity. The card will be exposed to officials. As it is government property, a judge could order it to be produced in court." A case is referred to in which a patient suffering from venereal disease called on his panel physician, who began to write the record. The patient asked what he was writing. The physician replied that the regulations required a record of his illness. "In that case," said the patient, "I shall consult a private doctor," which he did. The cost of the system is also declared to be enormous. The panel physicians do not see that there is much value in the system, and are certain that it cannot yield the valuable results hoped for. They add: "Medical facts gathered by such a system as Sir James Mackenzie is experimenting with may yield results of value. Nine physicians proceeding on special systems carefully thought out, and investigating in certain lines and with the leisure to devote two hours daily to research, cooperate in this endeavor. How different is the record envelop with its 2½ inch space for clinical notes of all sorts of cases from a cut finger to eclampsia." The fate of the earlier records which were required before the war and then abolished, because of the greatly increased work thrown on the physicians left in the country after the withdrawal of the younger men for military service, is recalled. After a few were examined they were sold as waste paper.

Professional Discipline

The General Medical Council, which has been given the power by Parliament of disciplinary jurisdiction over physicians, has issued a statement of the principal forms of professional misconduct that are punishable by erasure from the Register. They are: (1) The signing of certificates or documents, for use in courts or for administrative purposes, which are untrue, misleading or improper. These documents include certificates or reports as to births, deaths, lunacy, vaccination, factories, education, public health, workmen's compensation, notification of infectious diseases, national insurance, old age pensions, merchant shipping, sick benefit insurance, passports, and the excusing of attendance at courts, in the public service, in ordinary employment, or in naval and military service. (2) The employment in connection with professional practice of an assistant not duly qualified and registered, or the enabling of any person known to be unqualified and unregistered to treat a patient in respect to a matter requiring professional discretion or skill. This does not apply to the proper training of bona fide students or to the legitimate employment of dressers, midwives, dispensers and skilled mechanics under immediate personal supervision. (3) The employment by a physician who keeps a shop or other place in which scheduled poisons are sold by assistants who are left in charge but are not legally qualified to sell such poisons. (4) Assistance given, either by administration of anesthetics or otherwise, to an unqualified person attending or treating patients in matters requiring professional attendance, discretion or skill. (5) Advertising, particularly if deprecatory, of other physicians, employment of agents or canvassers and accepting employment under any association

which practices canvassing or advertising for the purpose of procuring patients. (6) Association with unqualified women practicing as midwives (the practice of such women is prohibited by law).

MADRID

(From Our Regular Correspondent)

Jan. 15, 1921.

Duval's Conference on Emergency Surgery

At the request of the physicians of emergency hospitals, Professor Duval gave a lecture on emergency surgery. According to Duval, we must first distinguish aseptic from infected wounds. The former may be treated provisionally with sterile bandages, while an effort is made to determine the presence of germs. If no germs are found, the wound is sutured twelve or fourteen hours afterward according to what Duval calls delayed first intention. Infected wounds may present two phases, a primary one of superficial contamination and a secondary one of contamination that involves the lymphatics. The first should be treated by the removal of all involved tissue, following the same procedure as in the aseptic wounds. We should follow the same procedure, but even more vigorously, in severe traumas which cause much tissue destruction from the beginning.

One of the complications, which, unless it is properly treated, may cause death, is the so-called sheet hemorrhage, for, according to the French theory of shock, it is through these numerous open capillary stomas that particles of necrosed tissue enter the circulatory stream and, acting as foreign proteins, are responsible for the intoxication which leads to shock.

First Session of the National Academy of Medicine

The first session of the National Academy of Medicine during the present year was held, January 9. Dr. Angel Pulido Fernández acted as secretary. Dr. J. Rodríguez Carracido, dean of the School of Pharmacy of Madrid and professor of chemical biology, presented a paper, commenting on the aversion to chemical studies shown of old by Spanish medicine. This distaste is also shown in art. In German and Dutch paintings, the alchemist is a subject again and again, but is not found in any painting of the Spanish school. He recalled the fact that toxicology is the science which first studied the body as a reagent. As an instance of the way in which chemistry throws light on life processes, he referred to diabetic coma. It has been attributed to the removal of alkalis from the body tissues, but it would be more accurate to say that it is caused through their neutralization by acids. Farther on, he explained chloroform anesthesia as due to the removal of water from the cells, where it is usually stored. He recalled that the anesthetic enters the blood gradually as it dissolves, and that it accumulates in growing quantities in the organs in which it dissolves. The solvent substances are lipoids which prevail most in the nervous system, if we leave aside the adipose tissue which is physiologically inert so far as anesthetic action is concerned, although it binds chloroform on a large scale. Rodríguez Carracido ended his interesting address, asking Spanish physicians, for their own good, to cooperate in furthering chemical studies in Spain.

Sanitary Policy

As the new administration is not expected to last long, nobody is taking much interest in the program of the new government, and no attention has been devoted to the fact that the government has not even mentioned in its program public health matters, which are such a pressing subject in Spain. However, as a result of the effort of some public-spirited and influential citizens, the government has issued a royal decree devoting to public health work in towns one tenth of the total of industrial, commercial and urban taxes. In

this public health work, first attention must be given to water supply; next sewerage, and finally street cleaning and other public health matters.

The superior council of public health has approved a bill to protect the water supply of large towns. The government has also under consideration the introduction of a bill for the prevention of infectious diseases. This bill has been introduced before in previous congresses. As a proof of the importance which the government attaches to sanitary questions may be mentioned the fact that Dr. Martin Salazar, inspector general of public health, has been made a senator to be its spokesman in such matters. It seems rather strange that the government should not have some one in parliament who could defend its public health activities, although we must confess that there is no possible defense for the official acts of some ministers in sanitary matters. The conception some of these gentlemen have of politics was well expressed by a recent minister when, on being found by some reporters at a department at the time he was supposed to be on bad terms with the government, he said, "Gentlemen, I assure you that as soon as I make enough to live, I shall quit politics."

Meeting of Officers of Spanish Medical Societies

There has just been held at Valencia a meeting of the officers of the Colegios Médicos, the Spanish medical societies. The meeting was important because it constituted one more step toward medical union, since the Colegios Médicos are the provincial medical associations to which physicians must necessarily belong as required by law. Everything tending to medical consolidation will meet general approval. Where the discrepancies will begin is when they try, as suggested at the meeting, to influence institutions such as the superior board of health which, because of its advisory technical character, should be above the result of any election, even if this takes place within the medical profession.

BELGIUM

(From Our Regular Correspondent)

Jan. 22, 1921.

School for Instruction in Social Service

Just at this time when the very foundations of society are seemingly being gradually transformed; when, under the influence of new ideas, new organizations are being created having for their purpose the bringing about of better physical, intellectual, social and hygienic conditions, it is only natural that Belgium has felt a desire to follow the example of the United States and England, in which countries special courses of instruction in social service have proved of inestimable service. The purpose of such instruction is to train competent workers for the various types of social service—for the bureaus that at present are still termed falsely "bureaus of charity," for the loan banks and for hospital administration. Special training is also given to visiting nurses, to directors of day nurseries, to men and women who expect to become heads of social welfare societies, or superintendents of factories, for these also have yielded to the demand for social service. During the war, the National Committee spread throughout the country the benefits of the various social and hygienic services. At the present time, it is our task to maintain and reorganize these services; but in order to do this we must train a capable personnel that competence may take the place of mere zeal and a more perfect coordination of effort be secured which shall bring about the desired end. Our Ecole de service social, established in 1919, has enrolled this year 200 pupils, 140 of whom have pursued a regular course of study. Its success has attracted the attention of the public authorities, who have accordingly taken on themselves the task of putting the results, so recently secured, on a permanent basis. They propose to encourage the establish-

ment in Belgium of a number of similar schools, which will be assured government aid if certain (not too strenuous) conditions are complied with.

Visiting Nurses

The establishment of the National Child Welfare Society and the success that has followed the enterprise have modified and extended considerably the rôle of the nurses in Belgian social life. Superior Council of the child welfare societies has also had a hand in transforming the requirements for nursing. Henceforth, a nurse must fulfil these conditions: (1) the successful completion of a moderately advanced preliminary course of study; (2) attendance for one year at a school for nursing and the passing of an examination in proof of qualifications; (3) six months in a hospital of at least fifty beds, as an intern nurse; (4) six months' course in theory and practice in a school giving courses for visiting nurses, and (5) the passing of an examination before the commission. The functions of visiting nurses are incompatible with the exercise of the profession of midwife. In rural communities, however, the Bureau of the Superior Council may, by way of exception, grant the privilege of performing the duties of both offices. The maximal salary of nurses is fixed at 6,800 francs a year.

School of Criminology

The study of medical jurisprudence in medical schools is obligatory for all students, but, owing to the crowded condition of the students' program during the years preceding the examination for the doctorate, this branch of study, being of secondary importance for the general practitioner, is commonly much neglected. It was a worthy undertaking to centralize in an effective manner the various branches of instruction in which our future experts in medical jurisprudence, on whom rests such a heavy responsibility, should be well grounded. The Société belge de médecine légale has, in the past, made laudable efforts to establish an organized body capable of training competent experts in matters pertaining to criminology. Yielding to the general demand, the minister of justice has appointed an administrative board to manage the affairs of a school of criminology. This board, which is composed of civil magistrates and of ministerial officials, has recently appointed the instructional corps for the new institution. The principal medical experts are Drs. de Rechter, Heger-Gilbert, Bruynoghe and Stockis. A number of jurists and criminologists have also been selected.

The Physiologic Expenditure of Energy as Measured by the Soldier on the March

From the data collected by Miss De Decker and Mr. Waller (communication to the Academy) we find that, for a march of 16 kilometers, the average expenditure of energy may be expressed by a fraction the numerator of which is the work performed (in the example cited, 133 kilograms per second) and the denominator, the expenditure of carbon dioxide as expressed in cubic centimeters (from 16 to 17 c.c.), less the normal expenditure of maintenance; that is to say, less the quantity of carbon dioxide produced in a state of repose (from 3 to 3.5 c.c.), which leaves for the denominator about 13 c.c. We get then, in the final result, as the fraction indicating the expenditure of energy and the degree of efficiency of the subject, the fraction $\frac{133}{13}$; that is to say, 0.1 c.c. of carbon dioxide. This method furnishes a very useful means of controlling the state of health. The figure 0.1 c.c. may be taken as the standard of the healthy man. The soldier who expends 0.2 or 0.5 c.c. should be considered as being in a pathologic condition, whereas the soldier who expends less than 0.1 c.c. should be considered as capable of performing a large amount of work.

BERLIN

(From Our Regular Correspondent)

Jan. 25, 1921.

Sex Determination and the Numerical Relation of the Sexes

Professor Correns, a biologist, director of the Kaiser Wilhelm Institute for Biology in Dahlem (near Berlin), delivered an interesting lecture recently on the still unsolved and yet, for both scientist and layman, interesting problem of sex determination and the numerical relation of the sexes. Mythology, mysticism, religion and science have so far tried in vain to solve the problem. To be sure, the recent investigations in botany, zoology and embryology, making use of the methods of Mendel's theory of heredity, denote significant progress in this field. Although the riddle of sex determination in the sense of a predetermination has found no practical solution as yet, we at least know now exactly the individual factors that determine sex. The new living organism, the embryo, originates in both plant and animal through the fecundation of the female ovum by the male spermatozoon. The ova are always all of one type; the spermatozoa, however, as has been revealed by careful microscopic and physiologic investigations, are divided into two classes, corresponding to the two different sexes, male and female. To these two classes of spermatozoa Correns applies the terms "Männchen- und Weibchenbestimmer," or male-generative and female-generative spermatozoa. The establishment of this fact constitutes an important discovery of modern biology. According to this new finding, sex then is determined solely by the male. The Munich Zoologist Richard Hertwig made his first experimental studies on sex determination by the use of frogs. Correns used a dioecious variety of lychnis, in which he found that, on an average, there were 70 per cent. female and only 30 per cent. male plants. That must be due to the fact that the female-generators among the spermatozooids were either in the ascendancy or were more rapid in their movements than the male-generators. By changing the quantity of pollen used for pollination he was able to change materially the numerical relation of male and female plants. When he used a large quantity of pollen, there were more female plants than when he used less pollen. When he used very old pollen, male plants resulted almost exclusively. In conclusion, the lecturer discussed the numerical relation of the sexes in man, which is quite different from what he found in plants. In man, the birth rate shows a relation of 106 males to 100 females. From the standpoint of conception, however, we find a relation of 125 male to 100 female embryos. In the later years of life this condition is much changed. Owing to the fact that boys are more susceptible than girls to external injuries, the numerical relation of the sexes becomes later exactly reversed. Even without the losses entailed by war and similar causes, there are always more women than men. Since the losses of the World War have entered into the case, this fact has become especially noticeable, as will be seen from these figures: In 1913, there were, in Germany, 1,024 women, of all ages, to 1,000 men; in 1919, the relation was 1,090 women to 1,000 men. If we consider only the ages from 18 to 45, the number of women to men in 1919 was as 1,180 to 1,000. In spite of the clearer insight into the workings of nature, the sex of our children is still determined mainly by chance.

Nutrition in Relation to Tuberculosis

The marked effect of nutrition on the morbidity and mortality rates in tuberculosis has been proved not only by the results of war conditions—more particularly, the food shortage—but also in a more pleasing manner, in the opposite sense, by the improvement of conditions in Germany since 1919. According to the statistics of 382 towns with 15,000 or more inhabitants (with an average population of around 26 mil-

lions), the number of deaths from tuberculosis in 1913 was 40,374; in 1916 it rose to 48,779; in 1917 to 67,860, and in 1918 to 75,160. In 1919 it had fallen to 66,604. In Prussia, 56,861 died from tuberculosis in 1913, or 13.65 to 10,000 of population; in 1916, 66,544, or 15.76 per 10,000; in 1918, 96,844, or 22.83 per 10,000. The mortality rate of tuberculosis in Prussia in the period from 1913 to 1918 increased approximately 67 per cent. This increment is greater among the urban than among the rural population, which agrees with previous experience. The mortality rate for tuberculosis in cities over 15,000 in population increased 72.6 per cent. In cities of this class, the number of deaths in 1919, as compared with 1918, was 10,556 less. The mortality rate for tuberculosis for the first six months of 1920 was only 20.2 per cent. higher than during the same period for 1914, whereas the corresponding rate for the second six months of 1919 was 38.5 per cent. higher and for the first six months of 1919, 97.7 per cent. higher. Accordingly, there is reason to hope that the augmentation of tuberculosis mortality in Germany reached its height in 1918 and since that time has been slowly approaching figures of the prewar period. The statistical reports from individual districts convey the same impression; e. g., the number of deaths from pulmonary tuberculosis in Berlin was 5,048 in 1917, but in 1919 had sunk to 4,568. From Königsberg, Professor Selter, director of the Hygienic Institute, reports that the number of deaths from tuberculosis rose from 490 in 1913 to 798 in 1919, an increase compared with 1910 of about 50 per cent. The augmentation of tuberculosis cases appears to have reached the summit in 1918 in many cities. According to the reports of the General Sick Benefits Fund of Greater Berlin, the number of cases of pulmonary tuberculosis per thousand male members was 5.2 in 1917 and 4.5 in 1918; per thousand female members, 3.3 and 2.4, respectively. According to an investigation by Dr. Davidsohn, there were among the Berlin children of the 2-15 age group, in 1919, from 5.4 to 6.1 per cent. of cases of tuberculosis. This figure is, however, doubtless much lower than it should be. The tuberculous infection in 1919 was found to affect children of an earlier age than in 1918.

Death of Albert Albu

The death of Prof. Albert Albu from embolism of the coronary artery, at the age of 54, is announced. Albu was one of the new members of the medical faculty of the University of Berlin who became privatdozent without having been an assistant in an "academic institute." His graduation thesis on trephining was accorded a special prize. While assistant in the Moabit Hospital, he wrote, aside from several smaller essays, a monograph on the autointoxications of the intestinal canal. Soon after, in collaboration with Neuberg, he published the fundamental textbook on the physiology and pathology of the metabolism of mineral substances, in which, for the first time, the whole material was treated critically in its bearing on metabolism, on the basis of new analyses. Later he published his "Analysis of the Feces," in Neuberg's compendium on "The Urine and Other Secretions." Albu also became known to wider circles for his investigations on metabolism in athletes and his works on vegetarian diet.

Marriages

LEONARD EDWARD FRASER, Bradford, Iowa, to Miss Rebecca Maud Atkinson of Winnipeg, Manit., February 15.

CLARENCE KELLEY GILDER, Corona, Ala., to Miss Clyda Brotherton of Birmingham, Ala., December 22.

SAMUEL SIDNEY FERN to Miss Zelda Hoffman, both of Newark, N. J., January 1.

JAMES H. MASON to Miss Violet Shrieve, both of Atlantic City, N. J., December.

Deaths

William M. Welch * Philadelphia; University of Pennsylvania, Philadelphia, 1859; aged 83; a veteran of the Civil War; at one time president of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society; clinical professor of contagious diseases at the University of Pennsylvania; died, February 8.

Walter Benedict Hillman, Greece, N. Y.; Bellevue Hospital Medical College, 1893; aged 53; a member of the Medical Society of the State of New York; captain, M. C., U. S. Army, and discharged, Jan. 14, 1919; a member of the Association of Military Surgeons of the United States; died, February 5, from injuries received in an automobile accident a few weeks before.

William Samuel Duboff, Denver; Columbia University, College of Physicians and Surgeons, New York, 1912; aged 31; a member of the Colorado State Medical Society; physician to the Jewish Consumptive Relief Society Sanatorium, Edgewater, Colo.; died, February 7, from pulmonary tuberculosis.

St. Elmo Morgan Sala * Rock Island, Ill.; Keokuk (Iowa) Medical College, 1892; aged 50; captain, M. C., U. S. Army, and discharged, Jan. 7, 1919; vice president of St. Anthony's Hospital, Rock Island; a member of the Western Surgical Association; died suddenly, February 17, from heart disease.

Loren A. Hyde, Indianapolis; Medical College of Indiana, Indianapolis, 1897; aged 50; a member of the Indiana State Medical Association; at one time superintendent of the Marion County Asylum for Incurable Insane, Julietta; died, February 3.

Frederick C. Watson, Cazenovia, N. Y.; Cleveland (Ohio) University of Medicine and Surgery, 1896; aged 49; health officer of Cazenovia and Fenner; died in Clifton Springs Sanatorium, N. Y., February 1, from nephritis.

Robert Alexander Black * Hot Springs, Va.; College of Physicians and Surgeons in the City of New York, 1883; aged 60; at one time president of the Brooklyn Board of Health; died, February 14, from heart disease.

John J. Burnell, Greenwich, Conn.; College of Physicians and Surgeons, Baltimore, 1888; aged 60; died, January 12, from the effects of injuries received when he was struck by an automobile.

Louis Fernandez Criado, New York; College of Physicians and Surgeons in the City of New York, 1879; a member of the Medical Society of the State of New York; died, February 7.

Walter Green Sullivan * Providence, R. I.; Harvard University Medical School, Boston, 1896; aged 47; consulting surgeon at St. Joseph's Hospital, Providence; died, February 3.

Owen Walter Owens, Muncie, Ind.; Chicago Homeopathic Medical College, 1897; aged 52; a member of the Indiana State Medical Association; died, February 5, from nephritis.

Thomas Audley Wakely * Jacksonville, Ill.; Rush Medical College, 1868; aged 78; a practitioner of Jacksonville for more than half a century; died in Philadelphia, February 4.

Chester Charles Beckley * Lancaster, Mass.; University of Vermont, Burlington, 1898; aged 44; major, M. C., U. S. Army, and discharged, March 1, 1919; died, February 4.

Byron N. Stevens, Chillicothe, Mo.; Rush Medical College, Chicago, 1869; aged 77; a practitioner of Chillicothe for half a century; died, January 26, from cerebral hemorrhage.

Abram G. Sellards, Portsmouth, Ohio; Miami Medical College, Cincinnati, 1871; aged 82; a veteran of the Civil War; died, Nov. 16, 1920, from empyema of the gallbladder.

Edward Josiah Ruddock, Santa Rosa, Calif.; Harvard University Medical School, Boston, 1879; aged 75; physician at the Hoopa Indian Reservation; died, February 7.

Frank Proal Hatfield * Rockaway Beach, N. Y.; Long Island College Hospital, Brooklyn, 1899; aged 49; died, February 5, following an operation for appendicitis.

Philip Berge * New Orleans; Tulane University, New Orleans, 1883; aged 60; assistant clinical surgeon at Loyola University, New Orleans; died, February 7.

* Indicates "Fellow" of the American Medical Association.

Joseph Henderson Richie, Sutersville, Pa.; Western Reserve University, Cleveland, 1867; aged 84; a veteran of the Civil War; died, February 7, from senile debility.

Frances Marx Greene • Berkeley, Calif.; University of California, San Francisco, 1889; aged 57; died in San Francisco, February 9, from fractured skull.

Adam Price • Almont, Mich.; Detroit Medical College, 1879; aged 68; physician to Burley Hospital, Almont; died, January 16, from cerebral hemorrhage.

Leslie Sherman Skelton, Okmulgee, Okla.; Eclectic College of Medicine and Surgery, Cincinnati, 1889; aged 55; died in Kansas City, Mo., January 28.

Morris H. Tindall • Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; aged 42; captain, M. C., U. S. Army; died, February 7.

James Fulton Wilson, Waycross, Ga.; Western Reserve University, Cleveland, 1872; aged 73; died, January 17, from cerebral hemorrhage.

William Schneider Shirk, McPherson, Kan.; Barnes Medical College, St. Louis, 1901; aged 42; died, January 29, from cerebral hemorrhage.

William McFarland Brown, Springfield, Mo.; Missouri Medical College, St. Louis, 1885; aged 59; died, February 12, from heart disease.

William B. Gilliatt, Young Creek, Ind.; Cincinnati College of Medicine and Surgery, 1871; aged 72; died in Lafayette, Ind., February 1.

Wilbur Truman Liggett, Winfemucca, Nev.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 68; died, February 8.

David Libby, Hastings, Pa.; Cincinnati College of Medicine and Surgery, 1885; aged 79; died in Spangler, Pa., February 3.

Tobias H. Foltz, Lima, Ohio; Western Reserve University, Cleveland, 1870; aged 77; a veteran of the Civil War; died, January 26.

Joseph Hausman, Cincinnati; Cincinnati College of Medicine and Surgery, 1896; aged 60; died, February 8, from erysipelas.

James Albert Jackson, Sr., Madison, Wis.; Bellevue Hospital Medical College, New York, 1866; aged 80; died, February 11.

Morris B. Oberholtzer • Boyertown, Pa.; Medico-Chirurgical College of Philadelphia, 1898; aged 45; died, February 12.

Clara Ferguson Foulk, Wilmington, Del.; Southern Homeopathic Medical College, Baltimore, 1899; aged 42; died, January 28.

Theodore Garrison Davis, Redondo Beach, Calif.; Jefferson Medical College, Philadelphia, 1885; aged 65; died, February 8.

Samuel P. Ousley, Macon, Ga.; Louisville (Ky.) Medical College, 1892; died, January 26, from cerebral hemorrhage.

Winfield Scott Ritenour • Dayton, Ohio; Starling Medical College, Columbus, Ohio, 1911; aged 40; died, February 1.

George Taylor Walton, Boston; Jefferson Medical College, 1872; aged 72; died, Nov. 22, 1920, from lobar pneumonia.

Henry Drummond Livingstone, Corcoran, Calif.; University of Michigan, Ann Arbor, 1875; died in December, 1920.

Fred R. Mosse • Rochester, Minn.; Chicago Homeopathic Medical College, 1877; aged 65; died, Dec. 26, 1920.

S. A. Washington, Hilltop, W. Va. (license, West Virginia, 1900); aged 60; died, January 14, from pneumonia.

John D. McClain, Anniston, Mo.; Eclectic Medical Institute, Cincinnati, 1875; aged 73; died, January 24.

James M. Swetnam, Phoenix, Ariz.; University of Michigan, Ann Arbor, 1870; aged 71; died, February 6.

Samuel B. Ambler, Sidney, Iowa; St. Joseph (Mo.) Medical College, 1885; aged 63; died, February 10.

William Henry Goodwin • Danville, Ill.; Rush Medical College, 1899; aged 45; died, February 4.

Hugh Hill, Dalton, N. Y. (license, Eclectic Board, New York, 1880); aged 84; died, January 26.

Louis C. Purman, Washington, D. C.; Howard University, Washington, 1884; died, January 26.

Charles R. House, Richfield, Ill. (license, Illinois, 1878); aged 73; died, January 28.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Robinson's Alfalfa-Nutrient and Alfalfa Blossom.—Peter R. Lunke, who did business as the Alfalfa Chemical Co. of Chicago, shipped in March and April, 1918, a quantity of "Robinson's Alfalfa Nutrient. The New Scientific Discovery Makes Thin People Plump" and "Robinson's Alfalfa Blossom. The New Scientific Treatment for All Women's Ailments." These products were declared misbranded by the federal authorities. The Bureau of Chemistry reported that



"Alfalfa Nutrient" was a pink pill containing licorice, plant extractives, including a laxative plant drug, calcium glycerophosphate and a cinchona alkaloid. The same authorities reported that "Alfalfa Blossom" consisted of suppositories made of cacao butter containing boric acid, zinc sulphocarbolate, eucalyptol and a cinchona alkaloid. The "Alfalfa Nutrient" was fraudulently represented as a cure for general debility and one that "never fails to restore health, strength and vital energy." The "Alfalfa Blossom" was fraudulently represented as a "positive guaranteed Specific for all female diseases." In March, 1920, Lunke pleaded guilty and was fined \$25 and costs.—[Notice of Judgment No. 7931; issued Dec. 30, 1920.]

Creole Female Tonic, Pa-Nol, and Royaline Oil.—These three nostrums were shipped by the Parker-Blake Co., New Orleans, in January, 1918, and the government officials charged that they were misbranded. The "Creole Female Tonic" when analyzed was found to contain alcohol, iron (probably as citro-chlorid), resins, gums, saponin, tannin, and alkaloids, indicating viburnum, cypripedium, cinnamon and possibly caulophyllum. The product was falsely and fraudulently represented as a cure for weaknesses and disorders of the female reproductive organs, for St. Vitus' dance, headaches, insanity, etc.

"Pa-Nol" was found by the federal chemists to consist essentially of sulphuric acid and water with a small amount of a volatile sulphur compound. It was fraudulently represented as a "cure for indigestion, dyspepsia, kidney and bladder trouble, female complaints, rheumatism, blood diseases, malarial poisoning" and a great many other things.

"Royaline Oil" when analyzed by the Bureau of Chemistry was found to consist essentially of morphin, chloroform, alcohol, camphor, sassafras, menthol, capsicum, cloves and boric acid. It was fraudulently represented as a cure for burns, colic, sore throat, sore eyes, sore mouth, piles, diphtheria and rheumatism. In November, 1919, the company pleaded guilty and was fined \$100.—[Notice of Judgment No. 7921; issued Dec. 30, 1920.]

Hill's Specific or Aromatic Elixir.—The Hill Chemical Co., Cave Rock, Ill., shipped in June, 1918, a quantity of this product which the government declared misbranded. The article was labeled in part: "G. W. Hill, M.D. . . . Contains $\frac{1}{6}$ grain opium to each fluid oz., 10 per cent. alcohol." When analyzed by the federal chemists it was found to contain $\frac{1}{2}$ a grain of opium to the fluid ounce and, in addition, alcohol, sugar, sulphites, sulphates, a small quantity of camphor and capsicum. It was declared misbranded, first, because the amount of opium present was incorrectly stated and because it was represented as "a safe remedy" when, as a matter of fact it "was a preparation which contained a harmful and deleterious drug, to wit, opium, which could not be administered with safety to health." Further it was fraudulently recommended as a specific and cure for diarrhea of children, summer complaint, peevishness in children, etc. In September, 1919, the company pleaded guilty and was fined \$25 and costs.—[*Notice of Judgment No. 7980; issued December 30, 1920.*]

Morley's Wonderful Eight.—The Morley Medicine Co., St. Louis, Mo., shipped in February, 1917, a quantity of "Morley's Wonderful Eight" which was misbranded. The preparation contained alcohol, 60 per cent., soap, camphor, oil of turpentine, oil of sassafras and ammonia. It was fraudulently represented as a cure for colic, sore throat, lung diseases, toothache, earache, backache, hog cholera, dog cholera, fowl cholera, spavin and many other things. In April, 1920, the Morley Medicine Co. pleaded guilty and was fined \$25 and costs.—[*Notice of Judgment No. 7932; issued Dec. 30, 1920.*]

Salvitae.—The American Apothecaries Co., Astoria, N. Y., shipped in May, 1918, a quantity of this product which was declared misbranded. When analyzed by the federal chemists, it was found to consist essentially of citric and tartaric acids with sulphates, carbonates or bicarbonates and phosphates of magnesium, sodium, potassium and lithium with a



trace of hexamethylenamin. It was falsely and fraudulently represented as a cure for gout, rheumatism, Bright's disease, inflammation of the bladder, kidney stone, etc. In November, 1919, a plea of guilty was entered and the company was fined \$200.—[*Notice of Judgment No. 7923; issued Dec. 30, 1920.*]

King's O. K. Capsules.—In April and June, 1919, Hance Bros. & White, Philadelphia, shipped a quantity of this product which the government claimed was misbranded. Analysis showed it to consist of capsules containing a mixture of santal oil and salol and tablets containing pepsin. These capsules which were apparently sold under the name of the King Medicine Co., Philadelphia, were recommended for "Gonorrhoea, Weakness, Diseases of the Bladder or Kidneys, Scalding or Burning or Thin Discharges," etc. The claims made were declared false and fraudulent and a decree of condemnation and forfeiture was entered, the court ordering that the product be destroyed.—[*Notice of Judgment No. 7918; issued Dec. 30, 1920.*]

Ring's Rose Injection.—A number of packages of this preparation consigned in January, 1919, by Charles L. Huisking, New York, were seized by the federal authorities on the charge that the product was misbranded. Analysis showed the preparation to consist essentially of lead and zinc, acetates and sulphates, alcohol and water perfumed with oil of rose. It was fraudulently represented as a cure for gonorrhoea, gleet, whites, etc. In May, 1920, a default decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7896; issued December 15, 1920.*]

Prescription 500 Capsules.—In July, 1919, the Grape Capsule Co., Allentown, Pa., shipped a quantity of this product which the federal officials held was misbranded. Analysis showed it to consist of capsules containing essentially a mixture of santal oil, cottonseed oil, copaiba, cubeb and salol. The product was fraudulently represented as a cure for gonorrhoea, gleet, acute cystitis, etc. In October, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7903; issued Dec. 30, 1920.*]

Correspondence

THE DOCTOR'S DEFENSE

To the Editor:—The antigeneral practice article (Leonard, V. N.: Significance of Group Practice in Its Relation to the Profession and to the Community, *THE JOURNAL*, Feb. 12, 1921, p. 421), supposedly representing our profession, was to me more amusing than edifying. I wonder whether all are now firmly convinced that they are "complacents": a kind of "lone bandits" that have for years been relieving an unsuspecting public of its money. The general physician must know by this time that he is totally ignorant of the difference between iritis and conjunctivitis, that it is impossible for him to know that a urine contains glucose or albumin, and that after years of study he does not know an L. O. A. from a breech presentation.

Some years of government service gave me an opportunity to study economics over a large part of the United States. I have seen "groups" to which I would hesitate to entrust either the lives of my patients or my own life. These were so-called "operative groups." This, by the way, is a very descriptive name: the accent is on the "operative."

A group composed of men who were real scientists, and not carried away by the common overenthusiasm of their respective specialties, would undoubtedly be a community asset. However, are groups composed of supermen? Will Dr. A. when he becomes one of the parts of Group A B C receive by divine right or by inspiration some wonderful improvement in his judgment, diagnostic ability or surgical technic?

The public has an unpleasant habit of keeping locally its own mortality statistics. After a short time it may not show a full appreciation of "young men recently trained in special fields."

The questionable methods of some groups of harping on the utter ignorance of all other medical brethren is simply a straw that shows what the multiplication of groups will mean to the profession.

I still like to believe that there are thousands of doctors who say to their patients at times, "I have not made a diagnosis" or "I have not the training to do this operation, but I will see that Dr. (not Group) So and So will take care of you."

The statement that "present methods of individual private medical practice are inefficient" is unethical and untrue. The

argument that these same inefficient doctors formed into groups would be the desired solution of all public ills is laughable.

If "the choice lies between this reorganization and some form of social medicine," the latter will prove the less of two evils.

Through the centuries of sacrifice and study, in modern medicine we have builded a wonder temple that towers above the civilization of the present day, resplendent in its purity, the pride of the living, a monument to the workers of the past. Is this yet unfinished edifice to be destroyed by those of our own ranks, "working from the inside?"

It might be desirable to groups to have the individual doctor legislated out of existence; but I would not advise any one to start it just yet. The time is not ripe. There will probably be enough postoperative comebacks, yes, and even wrong diagnoses, to keep the individual doctors busy for some years to come. FRANCIS ST. CLAIR REILLY, M.D., Claghorn, Pa.

SOME STATISTICS ON DRUG ADDICTS UNDER THE CARE OF PHYSICIANS IN PENNSYLVANIA

To the Editor:—A report rendered by this bureau for 1920 was tabulated as follows:

Cases of pure addiction.....	1,069
Diseased persons addicted to drugs.....	571
Persons with cancer and other neoplasms taking morphin.....	484
Persons with other incurable disease taking morphin.....	348
Aged persons addicted, not otherwise diseased.....	189
Aged addicts with demonstrable disease.....	162
Addiction due to postoperative conditions.....	49
Addicts not classified.....	83
Deaths among addicts, not listed above.....	149
Total in all classes.....	3,104

None of the persons listed are taking less than sixteen average doses of narcotics daily; all have become accustomed to ascending dosage and are using narcotic drugs all of the time, either as a habit or legitimately for the relief of pain or other distressing conditions and in whom addiction is incidental. The deaths were chiefly among those classed as pure addicts in 1919 and coming under the care of physicians after a life of dissipation. These persons secured their drugs from peddlers and prostitutes. Some committed suicide; others accidentally took overdoses, and the rest died from disease that found weakened systemic resistance. They went under the care of physicians after becoming public charges or when their friends became alarmed. There were many deaths from cancer, but few of the other cases of disease ended in death. Institutional cases are not listed in this report, since the Pennsylvania laws exempt such cases from report as drug addicts under treatment.

The incidence of malignant disease in this state is so heavy as to be a cause of great concern. In our follow-up work we have ascertained that the medical profession is guilty of very little misuse of narcotics in its treatment of cancer cases.

The heaviest incidence of incurable disease is advanced tuberculosis; next comes tertiary syphilis, in which morphin is given for the relief of lightning pains and gastric crises; there is a large incidence of arthritis of the chronic or deforming type. The incurable cases are reported principally from small municipalities and rural sections, and this leads us to the view that insufficient hospital care is responsible for many curable cases becoming incurable.

Addiction due to postoperative continuous pain leads to the view that there are quite a number of incompetent surgeons in this state, as we have kept in this classification a minimum of surgical patients reported as habitually using narcotics.

The fairly heavy incidence of aged and infirm addicts we attribute to conditions existing before there were any laws

controlling the sale of narcotic drugs, for even the aged addicts with demonstrable disease were addicts before they developed disease other than addiction, with a very few exceptions.

Our classification of addiction with disease is always provisional, for in most of the cases so classified we have ascertained that the addiction is the primary factor and the disease a secondary one; but in order to be just to physicians and their patients we enter many such cases for investigation. A large number of cases are reported as "chronic diarrhea" that are, in fact, purely instances of opium diarrhea; and many cases of "asthma" are merely dyspnea due to advancing years. Many neglected but entirely curable cases of genito-urinary disease are discovered when investigating reported addicts claimed to be diseased.

The 1,069 cases of pure addiction reported constitute only a small proportion of such cases in the state, for the greater proportion of pure addiction is among the classes that the physicians refuse to treat. This report deals with persons that are reported by physicians in private practice as pure addicts under their care. A large proportion of these persons were given the ambulatory reductive treatment and were finally reported either as leaving the physicians reporting them or as "cured." As a matter of fact, not fifty of them were cured, for they simply went to the "easy doctor," or two or three such men, and continued their addiction. The final result was that about 150 commercialized and incompetent medical men, unfortunately licensed to practice, gathered up, purely for the money that was in it, nearly all of these addicts and catered deliberately to their cravings for drugs. So it became necessary to issue orders that the reductive ambulatory treatment of pure addiction would not be accepted as in fulfillment of the narcotic laws of the state.

The result of this order was to suppress illicit professional work in the treatment of drug addiction, or largely to suppress it; and the pure addicts are now coming under control, either in institutions or under the care of competent and honest physicians.

This communication emphasizes the fact that the work of collecting dependable statistics on drug addiction is slow. To investigate and classify more than 3,000 cases of addiction scattered throughout the state is a large task, and the glittering generalities passing as statistics, and always exaggerated vastly, are a positive detriment to progress in this work.

THOMAS S. BLAIR, M.D., Harrisburg, Pa.

Bureau of Drug Control.

METHOD OF DETERMINING APPROXIMATE TIME OF DEATH

To the Editor:—Medicolegal volumes fail to reveal any method whereby one can determine even approximately how long a body has been dead. When a dead body is discovered the police naturally turn to the physician for information as to the probable time of death. We are therefore confronted by the problem of discovering some method that can be relied on to give fairly accurate information on this subject.

I have found that, taking advantage of the fact that those portions of the body farthest from the heart—namely, the extremities—are the first to cool, it is possible, by dividing the lower extremities into ten parts, to determine the approximate time of death with a fair degree of accuracy. The method is as follows:

Divide the leg from ankle to knee into three imaginary parts, take the region of the knee pan as the fourth part and divide the thigh into six parts, making ten parts in all, and make allowance of one hour for each division; then by sense of touch note the difference in temperature in each section.

Allowing one hour for each section and starting with Section 1 (Section 1 being the lowest third of the leg above the ankle), if Section 1 is found to be frankly cold as compared with Section 2 (middle third of the leg above the ankle), one may state that the body has been dead about one hour. If in Section 2 one finds frank coldness as compared to Section 3, the body has been dead about two hours, and so on up the leg and thigh until one is able to state approximately how long a body has been dead, if death has occurred within ten hours.

This method has been proved to be fairly accurate in more than a hundred examinations conducted by Assistant Medical Examiners Martin and Boettiger of Kings County, and by Drs. Hala and Atchley of Kings County Hospital, together with myself. The tests have been conducted only where the prevailing atmospheric temperature ranged from 40 to 80 F.

This method is so simple that every person connected with a hospital or with the police force can determine the approximate time of death to his own satisfaction, and in my opinion it should be of material aid to the ambulance surgeon, who is likely to be the first whose opinion is asked at the scene of the discovery of a body.

This article is submitted to the medical profession at large in order that it may be disproved or verified.

E. M. VAUGHAN, M.D., Brooklyn.

Medical Assistant District Attorney, Kings County.

[COMMENT.—The method suggested must be considered as only an approximate one. It is well known that death is much more gradual in some diseases than in others, and the feet and legs may be cold hours before breath or the heart action stops. In persons killed while in health, conditions as regard body cooling are different than with death from tuberculous meningitis. When the body is dehydrated, as for example in cholera or in other diseases with profuse diarrhea, conditions as to body cooling vary from those in which the body is not so deprived of fluids. High temperature preceding death, as in heat stroke, obesity, infections with *Bacillus aerogenes-capsulatus*, etc., may modify body cooling. This list of factors which may influence the decision is not complete but suggestive.—Ed.]

AID TO RUSSIAN PHYSICIANS

To the Editor:—Reduced to almost half their numbers by the war, the physicians of Russia have to fight disease without drugs, medical supplies, instruments and other necessities. A number of Chicago physicians have formed an organization for the medical relief of Russia, with the purpose of collecting and transmitting to the medical profession of that unhappy country the things most needed: (a) surgical instruments; (b) vaccines and antiseptics; (c) drugs and bandages, and (d) literature on the progress of medicine and surgery for the last seven years. An appeal is, therefore, made to physicians, scientific societies and medical research laboratories to donate from their equipment whatever they can spare.

I shall be glad to receive and acknowledge such contributions.

GEORGE B. HASSIN, M.D.

Chairman, Council for Medical Relief of Russia.
3155 Jackson Boulevard, Chicago.

Plague Disappears from Galveston.—From the discovery of plague in Galveston, June 8, 1920, until the end of the year, eighteen cases of the disease occurred in the city. Twelve of the patients died of the disease. The last case was reported, November 13, and proved fatal the same day. Approximately 64,000 rats were caught during the sanitary campaign, sixty-seven of which were plague infected, the last infected rat being trapped, December 1. All restrictions on outgoing railroad freight have been removed and conditions are considered normal.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

GLUCOSE IN BLOOD

To the Editor:—Please give in Queries and Minor Notes what is at this time considered the most reliable but simple test for blood sugar. The courtesy will be appreciated.

E. GARD EDWARDS, M.D., La Junta, Colo.

ANSWER.—A very exact method for the estimation of sugar in blood is that of Folin and Wu (*J. Biol. Chem.* **38**:81 [May] 1919; **41**:367 [March] 1920). The reagents now employed by the authors are:

Phosphomolybdate-Phosphotungstate Solution: Into a liter beaker place 35 gm. of molybdic acid and 5 gm. of sodium tungstate. Add 200 c.c. of sodium hydroxid solution, 10 per cent., and 200 c.c. of water. Boil vigorously for from twenty to forty minutes so as to remove nearly the whole of the ammonia present in the molybdic acid. Cool, dilute to about 350 c.c., and add 125 c.c. of phosphoric acid, 85 per cent. Dilute to 500 c.c.

Alkaline Copper Solution: Dissolve 40 gm. of pure anhydrous sodium carbonate in about 400 c.c. of water and transfer to a volumetric liter flask. Add 7.5 gm. of tartaric acid, and when the latter has dissolved add 4.5 gm. of crystallized cupric sulphate. Mix and make up to a volume of 1 liter. If the chemicals used are not pure, a sediment of cuprous oxid may form in the course of one or two weeks. If this should happen, remove the clear supernatant reagent with a siphon, or filter through a good quality filter paper. The reagent seems to keep indefinitely. To test for the absence of cuprous copper in the solution, transfer 2 c.c. to a test tube and add 2 c.c. of the phosphomolybdate-phosphotungstate solution; the deep blue color of the copper should almost completely vanish.

Standard Sugar Solutions: Three standard sugar solutions should be on hand: (1) a stock solution, 1 per cent. dextrose or invert sugar, preserved with xylene or toluene; (2) a solution containing 1 mg. of sugar per 10 c.c. (5 c.c. of the stock solution diluted to 500 c.c.); (3) a solution containing 2 mg. of sugar per 10 c.c. (5 c.c. of the stock solution diluted to 250 c.c.).

The procedure consists essentially of two steps:

1. The removal of the proteins from blood: Transfer a measured amount of blood to a flask having a capacity fifteen or twenty times that of the volume taken and mix with 7 volumes of water. From a pipet add 1 volume of 10 per cent. solution of sodium tungstate and mix. From another pipet add to the flask, while shaking, 1 volume of 0.67 normal sulphuric acid; close the flask with a rubber stopper and give a few vigorous shakes; a dark brown coagulum should form; if it does not, add normal sulphuric acid drop by drop, shaking after each addition and allowing the mixture to stand a few minutes before adding more, until coagulation is complete. Prepare a filter large enough to hold all the liquid, pour it on, and cover the funnel with a watch glass. Refilter if the filtrate is not clear.

2. The blood sugar determination is now made: Transfer 2 c.c. of the tungstic acid blood filtrate to a blood sugar test tube (a special blood sugar tube must be used), and to two other similar test tubes (graduated at 25 c.c.) add 2 c.c. of standard sugar solution containing, respectively, 0.2 and 0.4 mg. of dextrose. To each tube add 2 c.c. of the alkaline copper solution. The surface of the mixtures must now have reached the constricted part of the tube. If the bulb of the tube is too large for the volume (4 c.c.), a little, but not more than 0.5 c.c. of a diluted (1:1) alkaline copper solution may be added. If this does not suffice to bring the contents to the narrow part, the tube should be discarded. Test tubes having so small a capacity that 4 c.c. fills them above the neck should also be discarded. Transfer the tubes to a boiling water bath and heat for six minutes. Then transfer them to a cold water bath and let cool, without shaking, for from two to three minutes. Add to each test tube 2 c.c. of the phosphomolybdate-phosphotungstate solution. The cuprous oxid dissolves rather slowly if the amount is large; but the whole, up to the amount given by 0.8 mg. of dextrose, dissolves usually within two minutes. When the cuprous oxid

is dissolved, dilute the resulting blue solutions to the 25 c.c. mark, insert a rubber stopper, and mix. It is essential that adequate attention be given to this mixing because the greater part of the blue color is formed in the bulb of the tube.

The two standards given representing 0.2 and 0.4 mg. of glucose are adequate for practically all cases. They cover the range from about 70 to nearly 400 mg. of glucose per hundred c.c. of blood.

The color comparisons are made in the usual manner. The depth of the standard in millimeters multiplied by 100 and divided by reading the unknown gives the sugar in milligrams per hundred c.c. of blood, when the lower standard is employed; while the depth of the standard must be multiplied by 200 when the solution containing 0.4 mg. is employed.

TALMA OPERATION

To the Editor:—In THE JOURNAL, Jan. 29, 1921, p. 288, is published an article on "Spontaneous and Operative Cure of Cirrhosis of the Liver," by Dr. David Riesman, in which he mentions the Talma operation. Will you please describe this operation?

DARWIN D. SCHOTT, M.D., Champaign, Ill.

ANSWER.—Talma's operation is intended to cure ascites by establishing more free communication between the portal system and the systemic circulation. The operation is an epiploxy. The abdomen is opened and the omentum is sutured either into the abdominal wound or between the layers of the anterior abdominal wall. The results are said to be better when the second method is adopted. The gallbladder may also be sutured to the abdominal wall. The liver and spleen under the surface of the diaphragm and the parietal peritoneum about the liver and spleen are usually rubbed harshly with a piece of gauze. Drainage is not used by most operators as it does not appear to contribute any favorable chances, and it exposes the patient to the danger of infection. The operation ought to be performed early before the onset of chronic inflammation of the peritoneum. In a great majority of cases the operation has proved futile, and in some instances death has followed soon after from complications or because the disease is far advanced. In exceptional cases the operation has been of great benefit. The mortality is lowest when the liver is large; the smaller the liver, the greater the mortality.

The Quarterly Cumulative Index lists the following recent papers dealing with this subject:

- King, E. L.: Entire Relief of Symptoms in Cirrhosis of the Liver from the Talma Operation, *New Orleans M. & S. J.* 72: 529 (March) 1920.
 Eliot, E., Jr., and Colp, R.: Operation of Omentopexy in Cirrhosis of the Liver, *Surg., Gynec. & Obst.* 28: 309 (March) 1919.
 Mayo, W. J.: Surgical Treatment of Cirrhoses of the Liver and Their Complications, *Ann. Surg.* 68: 183 (Aug.) 1918; The Liver and Its Cirrhoses, *THE JOURNAL*, May 11, 1918, p. 1361.
 Hardin, L. S.: Operative Technic in Cirrhosis of the Liver, *J. M. A. Georgia* 7: 247 (March) 1918.

CHEMICAL CONSTITUENTS OF TUBERCLE BACILLI

To the Editor:—In THE JOURNAL, Jan. 20, 1921, p. 315, it is stated that "a high percentage of the weight of the tubercle bacillus is in the form of an alcohol chemically and physically somewhat similar to cholesterol." Would you mind giving me the reference to the original authority for this statement?

AUSTIN MILLER, M.D., Porterville, Calif.

ANSWER.—According to Kresling (*Centralbl. f. Bakteriol.*, 1, 30:897, 1901), 40 per cent. of the dry weight of the tubercle bacillus is lipid. About 40 per cent. of this in turn is in the form of alcohols other than glycerol, which are present as esters in the unsaponified lipid mixture. About a quarter of the lipid of the bacillus consists of wax, which is in the greater part mykol laurate (the mykol of Sakae-Tamura), an alcohol of high molecular weight (Goris: *Ann. de l'Inst. Pasteur* 34:497, 1920; Tamura: *Ztschr. f. physiol. Chem.* 87: 85, 1913).

Sakae-Tamura, who gave the name mykol to this alcohol, gives a provisional formula $C_{25}H_{46}O$. A number of sterols have from twenty-five to twenty-nine carbon atoms. Most, but not all, of these have a higher melting point than mykol. The empiric formula for cholesterol is usually given as $C_{27}H_{46}O$. Cholesterol itself has never been certainly identified in the tubercle bacillus, although several investigators have claimed positive tests for it. Mykol gives feeble color reactions like those of cholesterol in twenty-four hours (Goris). Goris thinks that some cholesterol may be present in the mykol fraction, but he has never been able to isolate it.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

- ARIZONA: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
 COLORADO: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
 CONNECTICUT: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.
 DISTRICT OF COLUMBIA: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
 IDAHO: Boise, April 5. Director, Mr. Paul Davis, Boise.
 MAINE: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.
 MASSACHUSETTS: Boston, March 8-10. Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.
 MINNESOTA: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
 MONTANA: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
 NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.
 NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.
 OKLAHOMA: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.
 PORTO RICO: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.
 RHODE ISLAND: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.
 UTAH: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.
 WEST VIRGINIA: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

New York June and July Examination

Mr. H. J. Hamilton, assistant, professional examinations, New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, June 29-July 2, 1920. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 513 candidates examined, 414, including 3 osteopaths, passed, and 98, including 5 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed	
University of Georgia		(1920)	1	
Rush Medical College		(1912)	1	
University of Illinois		(1916)	1	
University of Louisville		(1915)	1	
Johns Hopkins University	(1917) 1, (1919) 1,	(1920) 5,	7	
University of Maryland		(1920)	1	
Harvard University		(1920)	1	
Tufts College Medical School	(1913) 1,	(1916) 1,	2	
Detroit College of Medicine and Surgery		(1918)	1	
University of Minnesota Medical School		(1917)	1	
Albany Medical College		(1920)	20	
Columbia University	(1919) 3,	(1920) 46,	49	
Cornell University Med. College	(1915) 1, (1916) 1,	(1920) 34,	36	
Fordham University	(1915) 2, (1916) 1, (1917) 2,	(1920) 35,	40	
Long Island College Hospital		(1917) 1,	(1920) 53,	54
New York Homeopathic Medical College and Flower Hospital	(1917) 1, (1919) 2,	(1920) 20,	23	
Syracuse University College of Medicine		(1920)	32	
University and Bellevue Hospital Medical College		(1917) 1, (1919) 2,	(1920) 71,	74
University of Buffalo Department of Medicine		(1920)	50	
Eclectic Medical College, Cincinnati		(1920)	4	
Jefferson Medical College	(1915) 1, (1919) 1,	(1920) 1,	3	
University of Pennsylvania, Philadelphia		(1917)	1	
University of Pittsburgh		(1917)	1	
Vanderbilt University		(1914)	2	
University of Vermont	(1915) 1,	(1919) 1,	2	
Queen's University, Kingston, Ont.		(1920)	1	
University of Toronto	(1910) 1,	(1913) 1,	2	
University of Naples, Italy		(1905)*	1	
FAILED				
Georgetown University School of Medicine		(1913)	1	
American Medical Missionary College		(1910)	1	
College of Physicians and Surgeons, Chicago		(1902)	1	
Rush Medical College		(1917)	1	
State University of Iowa College of Medicine		(1911)	1	
University of Louisville		(1914)	1	
Johns Hopkins University	(1917) 1,	(1920) 1,	2	
University of Maryland	(1913) 1,	(1920) 1,	2	
Boston University School of Medicine	(1906) 1,	(1920) 1,	2	
Tufts College Medical School		(1917)	1	
Detroit College of Medicine and Surgery	(1917) 1,	(1919) 1,	2	
Columbia University	(1917) 1,	(1919) 3,	(1920) 5,	9
Cornell University	(1919) 2,	(1920) 4,	6	
Fordham University	(1915) 1, (1917) 2,	(1918) 1,	(1920) 6,	10
Long Island College Hospital		(1920)	9	
New York Homeopathic Medical College and Flower Hospital	(1916) 1, (1917) 1,	(1918) 2, (1919) 1,	(1920) 6,	11
New York Medical College and Hospital for Women		(1917)	1	
Syracuse University College of Medicine		(1920)	4	

University and Bellevue Hospital Medical College.....(1920)	1
University of Buffalo Department of Medicine.....(1920)	4
Eclectic Medical College, Cincinnati.....(1920)	4
Hahnemann Med. Coll. and Hospital of Philadelphia.....(1920)	1
Jefferson Medical College.....(1915) 1, (1919) 1,	2
Medico-Chirurgical College of Philadelphia.....(1916)	1
University of Pennsylvania School of Medicine.....(1917)	1
Woman's Medical College of Pennsylvania.....(1915)	1
Vanderbilt University.....(1913)	1
Baylor University.....(1920)	1
University of Vermont.....(1911) 1, (1919) 3,	4
Medical College of Virginia.....(1914)	1
McGill University.....(1920)	2
Queen's University.....(1904) 1, (1920) 1,	2
University of Munich, Germany.....(1911)*	

Mr. Hamilton also reports that 30 candidates were licensed by endorsement of their credentials. Of these, 15 were granted license by reciprocity with other states; 10 by endorsement of their licenses on the basis of eminence and authority in the profession; 2 were granted a registration license, and 3 candidates were licensed on diploma.

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago.....(1912)			Illinois
Hahnemann Medical College and Hospital, Chicago.....(1904)			Illinois
Rush Medical College.....(1903) (1916)			Illinois
University of Maryland.....(1916)			New Jersey
Long Island College Hospital.....(1920)			New Jersey
New York Homeopathic Medical College and Flower Hospital.....(1913) New Jersey, (1917)			California
University of Cincinnati College of Medicine.....(1914)			Ohio
Eclectic Medical College, Cincinnati.....(1915)			Ohio
Ohio Medical University.....(1904)			Ohio
Jefferson Medical College.....(1910) Ohio, (1915)			New Jersey
University of Virginia.....(1917)			Virginia
Marquette University School of Medicine.....(1919)			Wisconsin

College	LICENSED BY ENDORSEMENT OF CREDENTIALS	Year Grad.	Reciprocity with
George Washington University.....(1900)			Penna.
Tulane University of Louisiana.....(1912)			Louisiana
Johns Hopkins University.....(1910)			Maryland
Harvard University.....(1888) Massachusetts, (1915)			Maine
College of Physicians and Surgeons, Boston.....(1899)			Mass.
Western Reserve University.....(1885)			Ohio
University of Oklahoma.....(1915)			Kansas
University of Vermont.....(1904)			Vermont
McGill University.....(1896)			Quebec

College	LICENSED ON DIPLOMA	Year Grad.	Per Cent.
University of the City of New York.....(1889) 1, (1891) 1,			2
University of Michigan Medical School.....(1877)			1

* Graduation not verified.

Hawaii September Examination

Dr. J. E. Strode, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Sept. 13-16, 1920. The examination covered 8 subjects and included 86 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined 7 passed and 8 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Leland Stanford Junior University.....(1920)			80
University of California.....(1907)			86
Rush Medical College.....(1920)*			80
Tulane University.....(1905)			77
Harvard University.....(1914)			83
Washington University Medical School.....(1920)			83
University of Cincinnati.....(1912)			80

College	FAILED	Year Grad.	Per Cent.
Bennett College of Eclectic Medicine and Surgery.....(1898)			55
Northwestern University.....(1912)			71
Indiana University School of Medicine.....(1908)			67
Johns Hopkins University.....(1920)			70
Boston University.....(1901) 71, (1916)			71
Jefferson Medical College.....(1911)			73
University of Moscow.....(1912)**			74

* Diploma withheld until 1921, pending completion of hospital internship.
** Graduation not verified.

Maine November Examination

Dr. Frank W. Searle, secretary, Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 9-10, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard University.....(1920)			82, 84
Tufts College Medical School.....(1920)			81
McGill University.....(1919)			80

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Pennsylvania Department of Medicine.....(1875)			Illinois
University of Vermont.....(1906)			Vermont

Book Notices

INJURIES OF THE PERIPHERAL NERVES. By Henry S. Souttar, C.B.E., F.R.C.S., M.Ch., Assistant Surgeon and Director of the Surgical Unit, London Hospital, and Edward W. Twining, M.R.C.S., L.R.C.P., Medical Officer in Charge of Physical Treatment Department, Pensions Hospital, Netley. Cloth. Price, \$4.50. Pp. 152, with 30 illustrations. New York: William Wood and Company, 1920.

The authors have sought to gather into permanent form the observations of several years of experience and to apply to the demands of civil life what they have learned from the study of peripheral nerve injuries in war. The volume is a fairly comprehensive manual of the diagnosis and treatment of peripheral nerve injuries. Recognition has been taken of some of the more recent observations of other workers in this field, and such conditions as supplementary motility and sensory overlap which contribute to fallacies of diagnosis are emphasized. Some rather difficult physiologic problems are met by explanations that are too simple, as when the authors declare: "As, however, we approach the cord, these fibers become regrouped in accordance with the varying regions of the brain to which their sensations will ultimately be conveyed; and hence it follows that the nerves, as they arise from the cord, supply with epicritic sensation areas in which the overlap may be considerable." In discussing difficult sutures, the authors describe and in a measure advocate two procedures that appear to be contrary to current views. The first of these is resection of a long bone to permit coaptation of far separated ends of severed nerves, and the second, an operation which they describe as a "bulb-flap operation." In this operation they attempt to use the neuroma in which the axons from the proximal part of the nerve had been turned back as a means of conducting these axons along the degenerated sheaths of the flap which is sutured into the distal segment. This method would in a measure be equivalent to using the bulb on the proximal end in making end-to-end sutures, and would seem to be a method that should be condemned. The book is easy to read, and the illustrations are good.

CLÍNICA QUIRÚRGICA Y TÉCNICA OPERATORIA. Por el Dr. J. A. Presno y Bastiony. Paper. Pp. 311, with 62 illustrations. Habana: Imprenta "El Siglo XX," 1920.

Dr. Presno y Bastiony, the well-known professor of Havana University and editor of the *Revista de Medicina y Cirugía*, has assembled the different articles published by him on clinical and operative surgery from 1915 to 1919. The work is divided into six parts, dealing, respectively, with the liver and biliary passages, pancreas, gastro-intestinal tract, urinary passages, gynecology, and head and extremities. Probably the most practical as well as the most interesting chapter of the book is that written at the request of medical students in which are discussed the various modes of approaching deep vessels and nervivascular bundles. Of special interest also are the chapters on the surgical treatment of amebic liver abscesses and a new mode of approach in operations on the biliary passages. It consists in a straight 8 cm. incision over the linea alba just below the ensiform process, somewhat along the lines of Perthes' incision and Kehr's modification of Czerny's incision, but turning obliquely toward the tenth rib. The book is beautifully printed, and the numerous and handsome illustrations add most distinctively to its value.

INITIATIVE IN EVOLUTION. By Walter Kidd, M.D., F.R.S.E. Cloth. Price, 15 shillings net. Pp. 262, with illustrations. London: H. F. & G. Witherby, 1920.

The author attempts to prove the neo-Lamarckian theory of heredity, or that "acquired" characters are transmitted by heredity, by the study of the direction of the hair on the body of several species of mammals (man, monkey, horse, dog). The author's thesis is that the peculiar direction of the hair on certain parts of the body has been determined by mechanical stimuli resulting from prevailing posture or locomotion, that is, by mechanical pressure, until these peculiar patterns of hair direction become inherited. The first four chapters are essentially a review of the present status of the theories of evolution and heredity, as exemplified by

Weismann and by Bateson. The author is to be commended for his genial spirit and his ability to state the highly technical concepts of heredity in nontechnical terms, and without invoking the aid of mathematical formulas. The spirit of the amateur (in the good sense of that word) permeates the pages, and now and then a story or a parable is introduced to illustrate a point. In the preface the author thus describes the results of years of work in this special field: The furrow ploughed may have been lonely, but the pursuit has not been without the pleasure of seeing fresh scattered portions of the field coming into their natural order. The resultant state of mind resembles that of a certain Mr. Burke recorded in the annals of a golf club, the ancient, and now Royal Blackheath, among whose minutes appear the following:

20th September, 1834:

Present Mr. Burke, Solus.

The dinner was good, wine abundant, the utmost harmony prevailed. The want of grouse was severely felt this day.

HEART AFFECTIONS, THEIR RECOGNITION AND TREATMENT. B. S. Calvin Smith, M.S., M.D., Instructor in Medicine, University of Pennsylvania Graduate School of Medicine. Cloth. Price, \$5.50 net. Pp. 440, with 83 illustrations. Philadelphia: F. A. Davis Company, 1920.

The specialist or the student wishing to get an intimate knowledge of heart disease will not consult these pages for, as the author himself says, in his desire to be brief he has passed rather hurriedly over chapters, the importance of which demands more elaborate treatment. The busy physician or the undergraduate desiring a rapid survey of the subject may find it here, treated in quite an elementary though, on the whole, satisfactory manner. Favorable comment is deserved for the clear and sensible discussion of the treatment of heart disease, though one may feel that undue importance is attached to the Schott or Nauheim treatment. We trust that the same almost youthful enthusiasm that is found in this volume may characterize a second edition which should contain, if we may be pardoned the Irish bull, certain omissions and additions that will naturally be suggested to the author as he gains by richer experience and further study.

PRACTICAL PREVENTIVE MEDICINE. By Mark F. Boyd, M.D., M.S., C.P.H., Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Cloth. Price, \$4 net. Pp. 352, with 135 illustrations. Philadelphia: W. B. Saunders Company, 1920.

In this volume of about 350 pages the author has attempted to "briefly present the salient features of modern preventive medicine." The task is indeed a difficult one, because condensation necessarily means the omission of a vast amount of material and it becomes a matter of personal opinion concerning what is most important to include. The book should be of value to physicians, for whom it is primarily intended, but does not appeal to the reviewer as available for teaching elementary students in public hygiene. A textbook for the latter group is much needed. As to contents, "Practical Preventive Medicine" covers in abstract form the material presented in such comprehensive books as Rosenau's "Preventive Medicine and Hygiene" and Park's recently published "Public Health." The author has performed a difficult task with reasonable success.

A MANUAL OF PATHOLOGY. By Guthrie McConnell, M.D. Fourth edition. Cloth. Price, \$4.50 net. Pp. 611, with 187 illustrations. Philadelphia: W. B. Saunders Company, 1920.

The fact that this book has been six times reprinted is evidence that there is still a large demand for works that epitomize such a subject as pathology. Epitomes unfortunately permit the substitution of memory for understanding. As long as theoretical examinations are given, epitomes will continue to function as straws for the mentally submerged. In any regular scheme of education they have little place. Of its class, this book is one of the best, being usually accurate and with carefully selected illustrations. It is as complete as the limitations of its space permit, and as incomplete as these limitations necessitate. A student who memorized this book carefully would probably pass state board examinations—without further study he would not, however, understand pathology.

Medicolegal

Transportation of Insane Persons

(*Hines v. Miniard (Ala.)*, 86 So. R. 23)

The Supreme Court of Alabama, in reversing a judgment for damages obtained by plaintiff Miniard, against defendant Hines, as director general of railroads operating the Illinois Central Railroad, says that the wrong complained of occurred in Illinois and consisted of an alleged failure of the conductor of a train to take preventive action, which was described as gross and wanton negligence, when the plaintiff complained to him of the language being used by an insane colored woman in the same car. The court thinks that it may be accepted as the law of this case that, while it was the duty of the defendant company to take every reasonable precaution to prevent annoyance or injury to other passengers by the crazy woman—and this would include the duty of providing another place for her, if any such place were reasonably available on the train, or even putting her off the train at some place where she could be cared for, if that appeared to be necessary—still, the defendant had no moral or legal right to shift the annoyance or prospective danger of such a presence from the plaintiff and other passengers in the coach with her to others equally entitled to protection. On the whole, the question of the defendant's management of the crazy woman was one of judgment and discretion, and, if the judgment and discretion of its agent in charge of the train was exercised in good faith, the defendant was not guilty as charged in the complaint. A carrier cannot absolutely refuse transportation to insane persons. These people must be carried to the asylums, if nowhere else. The carrier has the right to require that such a passenger be in charge of a competent attendant. On it rests the duty of exercising a high degree of care that he do no harm to other passengers, and, if it be found necessary to the reasonable safety and comfort of other passengers, such passengers may be removed from the train at the first station where they may be properly cared for.

Medical Association as State Board of Health

(*Parke et al. v. Bradley et al. (Ala.)*, 86 So. R. 28)

The Supreme Court of Alabama holds that a demurrer was properly sustained to a bill filed by the complainants as taxpayers and citizens to enjoin any payment of state funds for the use of the state board of health, or its agents. The court says that it was contended that the legislature had exceeded its power when it enacted that the medical association of the state should be the state board of health, and the state board of censors of the association should be the state committee of public health, to act for the state board of health when the latter was not in session. But whether the association be regarded as a private, a public or a quasipublic corporation is, the court thinks, wholly immaterial; for the association, as such, is not invested with any power or authority whatever. On the contrary, recognizing its peculiar aptitude for the important and responsible service required, the state has availed itself of a ready-made organization of professional and practical medical scientists, and has by legislative fiat converted it bodily into a state board of health, and to this public board, not to the state medical association, the legislature has granted authority and jurisdiction in the premises. The court is advised of no constitutional inhibition against such legislative action. The implied limitation against any delegation by the legislature of its law-making power is in no way involved or concerned. But it is thoroughly well settled by the decisions of Alabama, as well as of other states, that the implied limitation against the delegation of the law-making power was never intended to prevent legislatures from authorizing their own appointed agencies to make such minor rules and regulations as are necessary or appropriate for the administration and enforcement of the general laws of the state.

However, the chief point of attack in the structure of the state board of health of Alabama was in the mode of selecting

its members, the objection being that in effect they are selected by the vote of members of the medical association of the state who, with respect to such action, are acting in a private capacity, in accordance with the rules of their association, and without responsibility to the state or to the people. Conceding this to be true, and admitting the moral force of the objection, the court is still unable to see that any constitutional inhibition is thereby violated. It is to be observed that the power of private corporate selection here complained of is indirect and not immediate, for, after all, the legislature designates the board of health, though it selects therefor a corporate organization whose individual membership is predetermined by the rules of that corporation. But, even so, there is a legislative adoption of those rules as the appropriate made of selection, and it is clearly within the power of the legislature to direct and formulate those rules, and to change them at its pleasure. But, those considerations aside, the authorities strongly support the authority of the legislature to vest in private associations of this sort the power to select or appoint the members of state boards constituted for the administration of public affairs.

The court might, without affecting its conclusion, have conceded, for the purposes of the discussion, that the medical association was and is a private corporation. The court is nevertheless of the opinion, having regard to its organization, aims, activities, and its relation to the state board of health and to the public welfare in general, that it is a quasipublic corporation, charged with duties and responsibilities which it cannot evade, and is therefore, even under a much narrower construction of legislative power than the court has accorded, an appropriate agency for service in the administration of the health laws of the state. The tendency of the courts, as the guardians and expounders of constitutions, has been and is to accord to legislation of this character the utmost liberality that is possible, consistently with the preservation of the organic structure of their governments.

Wherefore, the court holds that the state board of health is a legal body, lawfully empowered, and that it is entitled, through its legally qualified state health officer, to receive and, within the law, to expend the money appropriated thereto by the legislature.

Liability of Physicians as Roentgenologists— Unexpected Results

(*Hamilton v. Harris (Texas)*, 223 S. W. R. 533)

The Court of Civil Appeals of Texas, on the second appearance before it of this case, affirms a judgment for \$3,500 damages in favor of plaintiff Harris, on account of burns sustained from the alleged negligent application of roentgen rays by defendant Hamilton, in treating the plaintiff for a small spot of eczema, about the size of a silver dollar. The court says that the rule in Texas to determine the liability of physicians or surgeons for injuries sustained resulting from negligence or unskillfulness in the use of roentgen rays is the same applied in one class of cases as the others, whether such reasonable care and skill was used as is ordinarily exercised by reputable physicians in the locality. The physician is not expected to look for unexpected results from treatment of his patients, but is compelled to look for natural and probable results. He is not expected to anticipate results arising from peculiar characteristics and conditions of a patient, nor is he an insurer of unexpected results. So, while the treatment and character of the injury may be looked to as a circumstance, in the absence of testimony explaining, it may or may not be conclusive.

The defense was that the plaintiff had a hypersensitive skin, and it devolved on the defendant to prove that the plaintiff had such a skin. To accomplish that proof he brought in a number of physicians, who said either there was negligence or a hypersensitive skin. There was no proof of any hypersensitive skin, except the defendant's testimony, but, on the other hand, two applications were made to the skin with no burn or other bad result. If hypersensitive on the third application, the skin should have been hypersensitive on the first and second applications, for with the great array of medical experts not one of them testified that the skin was more sensitive on the third application than on the first or

second; and, if it were, the testimony showed that no greater precaution was taken by the defendant on the third than on the first and second applications. It was evident that when the defendant testified that the plaintiff had a hypersensitive skin it was predicated on the theory that the treatment was in all respects properly administered, and concluded therefrom that it would not otherwise have burned. The jury, however, did not agree with him, and found against his testimony, which it had the power to do. The fact that the skin did not burn on the first or second application, and did on the third, was a very strong circumstance to support the finding of the jury that the plaintiff did not have a hypersensitive skin. There was an interval of five days between treatments.

Nor was there error in submitting to the jury a special issue in regard to the use of a blanket or composition of rubber and lead as a protection, the blanket containing a circular hole of 6½ inches diameter, for it was itself introduced in evidence by the defendant for what it was worth, and identified by the defendant himself, and referred to by the medical witnesses as the proper kind of protection and proper size hole to have for the patch of eczema of the size proved. The testimony of the plaintiff describing the character of the burn as being outside the small spot of eczema might partially account for the burn, as the hole in the rubber covering was about 6 inches in diameter, through which the rays were administered to that small spot. The jury had the right to infer that, had the rays been confined to the diseased spot, by a smaller hole in the covering, even permitting the rays to touch a small surface around and outside it, they would not have burned the large surface, so the jury found that the hole used was too large and that that caused the burn. The court does not consider that the amount of damages allowed was excessive.

Duty of Parents to Support Defective Children

(*Schultz v. Western Farm Tractor Co. (Wash.)*, 190 Pac. R. 1007)

The Supreme Court of Washington, in affirming an order which divided \$2,250 paid by the defendant for the death of an employee, giving \$1,600 to the widow, and \$650 to a son by a former wife, says that the son was a cripple. In his early boyhood, because of some misfortune which had overtaken him, his left arm was amputated at the shoulder. He had but a moderate education, and there were in consequence but few pursuits open to him by which he could earn a livelihood. From his birth until his early youth he was supported entirely by his father, and, from the time he began to do something for his own support up to the time of his father's second marriage, if not up to the time of his father's death, he had been the recipient of a part of his father's somewhat meager wage. The widow, however, called attention to the fact that had the monthly sums which the son claimed to have received from his father been continued up to the time that the son would become of age they would not have amounted to the sum awarded him, from which it was argued that the sum which he would have so received should be considered the measure of his loss. But the court does not think that the argument was conclusive. Doubtless the legal duty of a parent to support his normal children ceases at the age of majority; but the rule is not the same with respect to his defective children, whether the defect be mental or physical. To these he owes a continuing obligation of support, which ceases only when the necessity for support ceases.

Society Proceedings

COMING MEETINGS

- American Association of Anatomists, Philadelphia, March 24-26.
- American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
- Arizona Medical Association, Tucson, April 15-16.
- Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, Congress Hotel, Chicago, March 7-10.
- Tennessee State Medical Association, Nashville, April 12-14.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

January, 1921, 28, No. 2

- Developmental Rate and Structural Expression: An Experimental Study of Twins, "Double Monsters" and Single Deformities, and Interaction Among Embryonic Organs During Their Origin and Development. C. R. Stockard, New York.—p. 115.
- Development of Mammalian Spleen, with Special Reference to Its Hematopoietic Activity. G. A. Thiel and H. Downey, Minneapolis.—p. 279.
- Early Establishment of Intestinal Nutrition in Opossum; Digestive System Just Before and Soon After Birth. C. H. Heuser, Baltimore.—p. 341.
- Recurrent Branches of Abducens Nerve in Human Embryos. J. L. Bremer, Boston.—p. 371.
- Studies on Effects of Thirst. I. Effects of Thirst on Weights of Various Organs and Systems of Adult Albino Rats. T. Kudo, Minneapolis.—p. 399.

American Journal of Obstetrics and Gynecology, St. Louis

January, 1921, 1, No. 4

- *New Conceptions of Relation of Liver to Problems of Abdominal Surgery. G. W. Crile, Cleveland.—p. 321.
- *Surgical Conditions of Liver and Biliary Tract. J. H. Branham, Baltimore.—p. 331.
- Where the Rubber Glove is Behind the Times. R. T. Morris, New York.—p. 334.
- Gehring Pessary for Relief of Cystocele. E. J. III, Newark, N. J.—p. 338.
- Endocrine Influence, Mental and Physical, in Women. J. E. King, Buffalo.—p. 341.
- Double Flap Low Cesarean Section Results. T. C. Welton, Brooklyn.—p. 350.
- Vaginal Cysts. L. W. Strong, New York.—p. 357.
- *Analysis of Fifty Cases of Ectopic Gestation. H. Grad, New York.—p. 360.
- Hernia of Ileum Through Rent in Mesentery. W. E. Darnall, Atlantic City, N. J.—p. 366.
- An Unusual Abdominal Cyst Caused by Tuberculosis of Omentum. O. G. Pfaff, Indianapolis.—p. 367.
- Encephalitis Complicating Pregnancy Near Term; Carcinoma of Cervix in Primipara Aged Twenty-Four. W. M. Brown, Rochester, N. Y.—p. 368.
- Rupture of Bladder During Labor. J. W. Poucher, Poughkeepsie, N. Y.—p. 371.
- Accidental Hemorrhage; Cesarean Section; Hematuria in Pregnancy. J. K. Quigley, Rochester, N. Y.—p. 372.

Physiology of Liver and Mortality of Abdominal Operations.—A summary is given by Crile of recent investigations of the physiology of the liver and of methods based on them whereby the mortality of abdominal operations may be diminished. He had prepared charts which show the percental variations in the electric conductivity of the liver and cerebellum in exhaustion from various causes. The conductivity of the liver is increased, whereas the conductivity of the brain is decreased. After excision of the liver, the temperature of the brain falls progressively until death. The brain cells show changes in the cytologic structure which are progressive from the moment the liver is excised. In every type of exhaustion, from whatever cause, the cells of the liver show cytologic changes, such as diminished power of differential staining, edema, and increased electric conductivity. Granting adequate circulation and respiration in a decapitated animal, the excision of the liver causes death earlier than decapitation of suprarenalectomy. From these premises Crile concludes that the liver is inseparably associated with the brain in the production of shock and exhaustion; but as the liver has no means of immediate contact with the external excitants of shock and exhaustion, it apparently in some way is influenced indirectly through the mediation of the brain. When the margin of safety has been reduced by diseases of the liver, such as cirrhosis, an abscess, a tumor, infection or jaundice, by starvation or emaciation, by want of water equilibrium, by loss of sleep, or worry, or fatigue from exertion, etc., then the liver must be protected against an increased burden of work such as worry, dread, muscular exertion, the trauma of operation, or pain during or after operation. These factors are excitants of metabolism; excitants of metabolism increase the work of the liver; increased work of the liver

must be avoided. A general scheme for the management of abdominal operations from this premise is given. Briefly, its aim is to avoid shock of every kind.

Subperitoneal Operation on the Gallbladder.—Branham describes a method of operating on the gallbladder which he claims is practically subperitoneal. Having opened the abdomen, an oval incision is made over the lower anterior surface of the organ; the peritoneal coat is dissected from the deeper tissues. A considerable margin of the peritoneal coat is left at the liver attachment; the duct is severed, and after being explored and emptied of stones, etc., a large catheter is fastened to it with a twenty-day catgut suture. The peritoneal coat from each side is stitched together and then to the ventral peritoneum. This leaves the catheter outside the peritoneal cavity and gives a smooth serous surface to cover the entire wound, thus preventing adhesions. Branham claims that operations performed in this way are rarely followed by adhesions and the patients are usually left in good condition.

Hemorrhage in Ectopic Gestation.—In the fifty cases analyzed by Grad thirty-seven women had negligible hemorrhage; four had moderate hemorrhage; seven severe hemorrhage and two cases were fatal from hemorrhage. The analysis of the cases shows that in 74 per cent. of cases of ectopic gestation a negligible amount of bleeding occurs; in 8 per cent. there is a moderate amount of bleeding; in 14 per cent. there is severe hemorrhage, and in 4 per cent. fatal hemorrhage occurs. In the first group of thirty-seven cases, the most prominent symptom was pain in twenty-six cases uterine bleeding in eleven cases.

American Journal of Physiology, Baltimore

January, 1921, 54, No. 3

- Experimental Studies in Diabetes. Series II. Internal Pancreatic Function in Relation to Body Mass and Metabolism. F. M. Allen, New York.
- *Influence of Cold.—p. 425.
- *Influence of Extremes of Age on Production of Diabetes.—p. 439.
- *Influence of Pregnancy on Experimental Diabetes.—p. 451.
- Rhythmicity of Pyloric Sphincter. H. Wheelon and J. E. Thomas, St. Louis.—p. 460.
- *Difference Between Mechanism of Hyperglycemia Produced by Ether and Chloroform. E. L. Ross and L. H. Davis, Chicago.—p. 474.
- Digestibility of Some Hydrogenated Oils. A. D. Holmes and H. J. Deuel, Washington, D. C.—p. 479.

Influence of Cold on Function of Pancreas.—In this experimental study Allen found that cold environment, such as did not lower the rectal temperature to any important extent, in some instances failed to affect the plasma sugar of dogs or slightly lowered it, but in the majority of experiments it produced hyperglycemia and sometimes glycosuria. These were produced more easily and in higher degree in proportion as the power of sugar utilization was impaired, i. e., as the diabetes was more severe. The power to produce glycosuria is to be distinguished from the power to produce diabetes. There is no demonstrable difference in the proportion of pancreatic tissue that must be removed to produce diabetes in dogs in warm or cold environment, and it was proved by successive operations on the same animals that the influence of cold is not equivalent to the removal of the smallest fraction of a gram of pancreatic tissue. In animals already diabetic, the course of the diabetes in a few instances seemed to be influenced slightly for the worse, so as, perhaps, to warrant the conclusion that cold imposes an increased burden on the pancreatic function by increasing metabolism. The slightness of this influence is emphasized by control experiments. The impression that diabetic patients do worse in cold weather, Allen says, is probably explainable by the discomfort of chilliness when they are undernourished, the tendency to take more food, and sometimes by the limitation of exercise. These may be important sometimes from a practical standpoint, but any direct influence of climate on diabetes must be very slight if it exists.

Influence of Age on Function of Pancreas.—Allen suggests that childhood infections injuring the pancreas may be responsible for some cases of diabetes which appear at a much later period.

Influence of Pregnancy on Experimental Diabetes.—No positive influence of the sex glands on diabetes was demon-

strable by extirpation experiments; also no anatomic changes in the pancreas were perceptible with pregnancy or lactation. Observations on a partially depancreatized dog during pregnancy are opposed to the view that any appreciable quantity of internal pancreatic secretion passes from the fetus to the mother. A distinct lowering of carbohydrate assimilation was shown during pregnancy.

Mechanism of Hyperglycemia Production by Ether and Chloroform.—The experiments made by Ross and Davis show that ether anesthesia does not procure any injury to the mechanism of dextrose mobilization that can be detected the following day. The injury to the liver cells produced by chloroform anesthesia reduces the glycemia of the following day and injures the mechanism of dextrose mobilization according to the degree of injury. The hyperglycemia due to chloroform anesthesia is not due primarily to the direct action of chloroform on the liver. Probably chloroform, like ether, produces hyperglycemia chiefly through its depressing action on the internal secretion of the pancreas.

American Journal of Roentgenology, New York

January, 1921, 8, No. 1

- Peristalsis in Health and Disease. W. C. Alvarez, San Francisco.—p. 1.
- *Pneumoperitoneum of Pelvis. J. B. Von Zwaluwenburg and R. Peterson, Ann Arbor.—p. 12.
- Case of Dislocation of Right Carpal Scaphoid. T. S. Bonney, Aberdeen, S. D.—p. 24.
- Roentgen-Ray Treatment of Tonsils and Adenoids. W. D. Witherbee, New York City.—p. 25.
- An Inexpensive Radium Capsule Holder. G. E. Pfahler, Philadelphia.—p. 30.
- *Two Unusual Chest Cases. J. G. Williams, Brooklyn.—p. 31.

Pneumoperitoneum of Pelvis.—The authors inject from one-half to 2 liters of carbon dioxide taken from one of the usual commercial tanks from which a nitrous oxide bag is filled, and this bag is then connected with a needle which usually is inserted about 1 inch below the umbilicus in the median line. The observations made have been very satisfactory. They are discussed.

Hysterical Aphasia.—Williams reports one case of hysterical aphasia and one of hernia of the stomach through the diaphragm into the posterior mediastinum.

Archives of Ophthalmology, New York

January, 1921, 1, No. 1

- Trephine in Chronic Glaucoma. T. H. Butler, Birmingham, England.—p. 1.
- Histology of Region of Corneoscleral Margin. K. Hiwatari, Kagoshima, Japan.—p. 10.
- Astigmatism; Especially with Regard to Influence of Age on Axis. A. W. Stirling, Atlanta, Ga.—p. 19.
- Diseases of Eye Due to Syphilis and Trypanosomiasis Among Negroes of Africa. J. N. Roy, Montreal.—p. 28.
- Sympathetic Ophthalmia. Report of Case Successfully Treated. A. Wiener and E. Bonime, New York.—p. 43.
- Cyclopia, Its Bearing on Certain Problems of Teratogenesis and of Normal Embryology; Description of Cyclocephalic Monster. E. Hill, Richmond, Va.—p. 52.
- Perimetric Methods. P. G. Doyne, Philadelphia.—p. 81.
- Report of the Proceedings of the Section on Ophthalmology of the New York Academy of Medicine. C. Berens.—p. 90.

Boston Medical and Surgical Journal

Feb. 3, 1921, 184, No. 5

- *Foreign Bodies as a Cause of Appendicitis. S. A. Mahoney, Holyoke, Mass.—p. 113.
- Four Cases of Diverticulitis of Sigmoid Opening into Bladder. A. L. Chute, Boston.—p. 118.
- *Cancer of Rectum. E. A. Wells, Hartford, Conn.—p. 121.

Pin in Appendix Cause of Appendicitis.—Mahoney's patient, a boy aged 4 years, had abdominal pains, paroxysmal in character and occasional vomiting. Examination disclosed a very tender tumor, low down on the right side. A diagnosis of acute appendicitis was made, and operation advised. The opening of the abdomen disclosed a clean peritoneal cavity. Hanging over the pectineal line, dipping into the true pelvis and very adherent to the neighboring pelvic bone and small intestines, was an egg-shaped tumor, brawny red in color, looking in shape and size like an infant's heart, with the base attached to the cecum. This base was so broad that it encroached on the ileocecal junction, so that considerable care had to be exercised in dissecting it free from the ileum.

Much difficulty was encountered in freeing it from the pelvic bones and coils of adherent small intestines. The presence of a pin in the lumen of the appendix was not discovered until the specimen was opened. The pin lay parallel to the long axis of the appendix with its point toward the cecum and its head lying at the tip. The shaft of the pin was surrounded by a hard fecal concretion about the size of a peanut, with the point of the pin uncovered.

Cancer of Rectum.—Wells analyzes the records of fifty-three cases, twelve of them having been under his observation. There were fourteen attempts at radical surgery; three by the sacral route only, made operative recoveries. One patient was operated on by the abdominal route only and made a recovery. Five patients were operated by the combined abdominal and sacral route in two stages; all made operative recoveries. In five cases in which these two routes were combined in a single stage operation, the patients died as a result of operation. In eighteen cases, no operation of any sort was undertaken. In one or two instances, a colostomy which might have been done for relief, was refused by the patient. In four cases, an operation through the anus was done, usually for examination, relief of septic conditions, etc. Wells urges that early diagnosis and more daring surgery will lower the mortality because cancer of the rectum is not a hopeless condition. It can be cured.

California State Journal of Medicine, San Francisco

January, 1921, 19, No. 1

- Problems of Enforcement of Medical Act. C. B. Pinkham, San Francisco.—p. 6.
- Present Nursing Situation. W. W. Roblee, Riverside.—p. 8.
- Plea for Better Fracture Results. G. J. McChesney, San Francisco.—p. 11.
- Practical Points in Using Thomas Splints. S. Bunnell, San Francisco.—p. 13.
- Clinical and Laboratory Findings in Pyelitis and Pyelonephritis. L. J. Roth, Los Angeles.—p. 16.
- Improved Incision for Fredet-Rammstedt Operation. E. Butler, San Francisco.—p. 17.
- *Involvement of Genito-Urinary Tract Associated with Active Pulmonary Tuberculosis. A. Peterson, Los Angeles.—p. 18.
- Vesico-Intestinal Fistula. L. C. Jacobs, San Francisco.—p. 19.
- *Ureteral Transplants for Obstruction of Lower Ureter. R. V. Day, Los Angeles.—p. 21.
- Significance of Spinal Defects and Pain Occurring in Relation to Ocular Disease. L. Mills, Los Angeles.—p. 23.
- *Group Study of Three Hundred Cases of Arthritis. M. C. Harding, San Diego.—p. 26.
- *Etiology of Bronchial Asthma. S. Piness, Los Angeles.—p. 29.
- Nasal Conditions Occurring in Bronchial Asthma. S. Jesberg, Los Angeles.—p. 33.

Involvement of Genito-Urinary Tract in Active Pulmonary Tuberculosis.—During eleven months of Peterson's service at Fort Bayard, the patient population varied between 800 and 2,000, practically all in the original draft age (from 20 to 30 years). Approximately 80 per cent. of the patients had active pulmonary tuberculosis; the remainder were sent there under observation for tuberculosis. Peterson demonstrated only five cases of surgical tuberculosis of the kidney, in only three of which was there active lung involvement. One man had bilateral renal tuberculosis and one had a unilateral renal tuberculosis and tuberculous epididymitis, with no active pulmonary lesions. Involvement of the epididymis was observed in three cases. On one man an epididymectomy had been performed elsewhere and a fistula persisted. One man had bilateral involvement, and in one an acute abscess developed, destroying both the epididymis and testicle. A castration was done and the wound healed in three weeks. Two months later the patient died from an acute tuberculous pneumonia. At necropsy the kidneys were free from tuberculous invasion. The prostate showed a caseated abscess and there was a cold abscess at the stump of the cord following the castration, which had not pointed to the surface. At necropsies massive lung lesions were always found—old multiple cavities filled with pus, cheesy material and necrotic tissue; large massively walled-off cavities with very extensive destruction of tissue. These old types of lesions were now and then associated with a fresh general miliary distribution, both into the remaining functioning lung tissue and into the peritoneum and abdominal viscera. Except in cases where acute miliary tuberculosis was the immediate cause of death, the genito-urinary tract was rarely involved in the infection, and here the lungs

showed old massive lesions, while the lesions in the kidneys were of the young or miliary type.

Ureter Transplantation.—Day reports two cases of carcinoma of the bladder, one of carcinoma of the cervix and one of carcinomatous infiltration of the pelvis in which ureteral transplantation into the skin of the abdomen was done. In each instance life was prolonged and made more comfortable. In one case of carcinoma of the bladder a ureterosigmoid transplantation was done. The patient died of uremia nine days after the operation.

Etiology of Arthritis.—The work reported on by Harding was done at the U. S. Base Hospital, Camp Lewis, Washington, extending over a period of sixteen months. In 89 per cent. of the cases studied some infectious process other than that in the joints themselves was found and treated. The blood cultures were all negative. As to types of infection, the usual group of streptococci, *S. hemolyticus*, *S. nonhemolyticus* and *S. viridans*, were found. But—a routine examination of hundreds of throats in the hospital undertaken at the same time showed about the same proportion of streptococci present! Harding is not at all convinced that the particular germ present in a tooth or tonsil is necessarily the sole causative factor in the joint condition. The urine followed typical febrile curves in acute cases, while a trace of albumen was not rare. No case of kidney trouble arose, though polyuria was often pronounced during the administration of large doses of salicylates. The absence of gastro-intestinal diseases proved a surprise. Not a chronic gallbladder case nor appendiceal infection was found in the entire series. About 25 per cent. of the cases came in diagnosed as gonorrheal rheumatism. The 12 per cent. of inflamed prostates, and 9 per cent. actual gonorrhea found, represent with a few exceptions the same men. The typical monarticular gonorrheal arthritis or peri-arthritis was very rare. It made up not more than 2 or 3 per cent. The bulk of the cases having a demonstrable gonorrheal focus presented the same varied types of arthritis as the nongonorrheal. Harding is inclined to believe that medical men are too prone to diagnose gonorrheal arthritis.

Etiology of Bronchial Asthma.—A study of 150 cases leads Piness to state that asthma is a clinical manifestation produced by protein sensitization. Heredity is an improvement predisposing but not exciting factor in from 25 to 50 per cent. of the cases. Climate has very little bearing on the etiology excepting in the pollen and asthmatic bronchitis types. Eczema, urticaria, and angioneurotic edema have definite relationship to the protein sensitive asthmatics. It is possible with cutaneous tests to determine the etiology of bronchial asthma in from 47 to 50 per cent. of cases. Multiple sensitization is common particularly in the food and pollen groups. Sensitization to one protein in early life is apt to be followed by sensitization to other proteins, early in life and vice versa. Renal and cardiac diseases may complicate asthma, but the latter is a distinct, and separate condition, not dependent on the former. Patients with a history of onset past 35 years of age rarely give positive skin reactions, but serum of agglutination tests to *Staphylococcus pyogenes-aureus* occasionally give positive reaction and determine the cause. There is no fixed relationship between cutaneous reaction, serum agglutination tests and isolation of *Staphylococcus aureus* from sputum or nasal secretions. Endocrine dysfunction bears a prominent part in the etiology of asthma, particularly in the case of younger individuals, and should be borne in mind where the patient does not respond to specific protein treatment.

Johns Hopkins Hospital Bulletin, Baltimore

January, 1921, 32, No. 359

- *Hydrocephalus in Chondrodystrophy. W. E. Dandy.—p. 5.
- *Mechanism of Carrier State, with Special Reference to Carriers of Friedländer's Bacillus. A. L. Bloomfield, Baltimore.—p. 10.
- *Tuberculosis of Kidney in Women. L. Brady, Baltimore.—p. 13.
- *Portal Thrombosis. L. T. Webster, Baltimore.—p. 16.
- Relation of Histamin to Leukocytosis. J. R. Paul, Baltimore.—p. 20.
- *Influence of Anterior Lobe of Hypophysis on Development of Albino Rat. W. R. Sisson, Boston, and E. N. Broyles, Baltimore.—p. 23.
- *Syphilitic Rupture of Papillary Muscle of Heart. E. D. Spalding and W. C. Von Glahn, Baltimore.—p. 30.

Hydrocephalus in Chondrodystrophy.—Dandy discusses a case of chondrodystrophy in a boy, aged 19, who had a very low mentality with an unusually large head. It was out of all proportion to the rest of his dwarfed body and even when his body was concealed, the size of the head was scarcely less impressive. The large head was shown by ventriculography to be due to hydrocephalus. The size of the head and, therefore, the grade of hydrocephalus seems to be proportionate to the severity of the dwarf phenomena in chondrodystrophy. A second case is also reported.

Carriers of Friedländer's Bacillus.—Of eighty-five unselected individuals examined by Bloomfield, 5.8 per cent. were found to be carriers of Friedländer's bacillus. Differential cultures showed the breeding place of the bacilli to be in the tonsil. The carrier's own strain or a foreign strain of Friedländer's bacillus implanted on the free surfaces of the mucous membranes disappeared at the same rate of speed as in a noncarrier. It was impossible artificially to produce a carrier state by repeated inoculation with *B. Friedländer*. The general conclusion drawn by Bloomfield from his observations is that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria. They do not become adapted to growth on the free surfaces of the mucous membranes.

Tuberculosis of Kidney.—Seventy-seven cases of proved tuberculosis of the kidney are analyzed by Brady. There was a definite family history of tuberculosis in fourteen. In forty-six cases the right kidney was affected, in twenty-seven the left, and in four the disease was bilateral. The average duration of symptoms before admission to the hospital was thirty-three months. Twenty-five patients complained of hematuria and in eight of these it was the first symptom. Two patients first noticed general weakness, and in all the other cases dysuria and polyuria were the first evidences of the kidney disease. The general physical examination showed pulmonary tuberculosis in six cases. Four of these patients had active, two inactive, pulmonary tuberculosis. One patient developed tuberculous peritonitis two years after the removal of a tuberculous kidney. In four cases only was a marked enlargement of the kidney noted, and these cases were found at operation to be cases of tuberculous pyelonephrosis. Operations were performed in seventy out of the seventy-seven cases. In sixty-seven cases the kidney was removed, and in three cases simple nephrotomies were done. Of the seven patients not operated on, four are known to be dead and the other three left the hospital in a very bad condition. No definite information about them is available. The three women on whom simple nephrotomies were performed all did badly. The ultimate result is known in forty-two out of sixty-seven cases in which the kidney was removed. Seven of these forty-two patients may be classed as greatly improved and are alive six years after their operations; twenty-five are entirely well with an average period of eleven years since they were discharged from the hospital. Comparison of the results obtained when the ureter is removed with the kidney and when it is left in situ shows that, although the ultimate results are the same following the two methods, the postoperative sinus heals more rapidly when a nephro-ureterectomy is done, and this therefore, seems to be the operation of choice when the patient's condition warrants a prolongation of the anesthetic.

Portal Thrombosis.—Portal thrombosis occurred twenty-one times in the 6,050 necropsy records of the Johns Hopkins Hospital. It was associated with cirrhosis of the liver in seven cases; with carcinoma in six cases; with cholangitis in four cases and with amyloid disease, ulcer of the stomach, Banti's disease, and phlebitis, in one case each, respectively. The histories of these cases are given.

Influence of Pituitary on Growth.—The results obtained by Sisson and Broyles were entirely negative.

Rupture of Papillary Muscle of Heart.—In the case cited by Spalding and Glahn the pillar to which the chordae tendinae from the right half of the aortic leaflet of the mitral valve are attached was ruptured. The symptoms were those of loss of compensation. Dyspnea was marked. Syphilis was the cause of the condition.

Journal of Bacteriology, Baltimore

January, 1921, 6, No. 1

- *Chemical Criteria of Anaerobiosis with Special Reference to Methylene Blue. I. C. Hall, Chicago.—p. 1.
Powdered Litmus Milk. Product of Constant Quality and Color Which Can be Made in any Laboratory. H. W. Hamilton, Boston.—p. 43.
Bacteria Concerned in Ripening of Corn Silage. P. G. Heineman and C. R. Hixon.—p. 45.
Some Atypical Colon-Aerogenes Forms Isolated from Natural Waters. M. C. Perry and W. F. Monfort.—p. 53.
*Botulism in Cattle. R. Graham and H. R. Schwarze, Urbana, Ill.—p. 69.
Indol Test in Tryptophane Solution. C. Barthel, Stockholm, Sweden.—p. 85.
*Nature of Hemolysins. J. T. Connell and L. E. Holly, Ann Arbor, Mich.—p. 89.
*Nature of Toxin. Antigens of *Corynebacterium Diphtheriae* and *Bacillus Megatherium* and Their Relation to Toxin. C. C. Warden, J. T. Connell and L. E. Holly, Ann Arbor, Mich.—p. 103.
Gas Production of *Streptococcus Kefir*. J. M. Sherman, Washington, D. C.—p. 127.
*Importance of Preserving Original Types of Newly Described Species of Bacteria. C. E.-A. Winslow, New York.—p. 133.

Chemical Criteria of Anaerobiosis.—Hall reviews the literature on chemical criteria of anaerobiosis, and undertakes a critical experimental survey of the subject in so far as it relates to the use of methylene blue for this purpose. The mechanism of the decolorization of methylene blue is studied in detail and shown to depend on the interaction of alkali and certain organic substances, notably carbohydrates. A correspondence between Fehling's test and the decolorization of methylene blue in alkaline solutions of various carbohydrates is pointed out. It is shown that while there is a direct relation between the amount of dye decolorized by heating and the amounts of alkali and glucose; there is an inverse relation between the last two factors in the test, so that an increase in one permits a decrease in the other for the same result. Carbon dioxide, as well as oxygen, is shown to be an effective factor in the recoloration of decolorized methylene blue. A detailed study of the decolorization of methylene blue by plant and animal tissues is described, showing the important rôle of adsorption as a means of decolorization by these and other porous substances. The extraction from plant and animal tissues of reducing substances for methylene blue, active in alkaline-solution, is described. The efficacy of deep culture methods for anaerobes is shown while the inefficacy of insoluble liquid (i. e., oil) seals is contrasted with the reliability of semisolid waxes and greases, and that of mechanical seals. The short-comings of certain methods of surface culture of obligative anaerobes are exposed and the value of a modification of Wright's method upheld by these studies. The desirability is indicated of determining exactly to what degree of oxygen tension reduction the decolorization of methylene blue corresponds, and whether decolorization occurs at a definite hydrogen ion concentration irrespective of the sugar content of the solution.

Botulism in Cattle.—The studies made by Graham and Schwarze established the protection value of botulinus antitoxin against corn silage infected with *B. botulinus*. The treatment did not injure the animals.

Nature of Hemolysins.—Two hemolysins, streptolysin and megatheriolysin, were studied by Connell and Holly and they conclude that they are the fat antigens existing in definite colloidal states.

Nature of Toxin.—Evidence is presented by Warden and his associates which is believed to establish tentatively, at least, that *Corynebacterium diphtheriae* and *B. megatherium* possess characteristic fat complexes which are, under proper colloidal conditions, the true antigens of these micro-organisms. Artificial fat antigens have replaced the antigens of the germ bodies in the various immune reactions. The lysins and toxins of the *C. diphtheriae* and *B. megatherium* are the same substances, being, respectively, the specific fat antigens of the micro-organisms existing in definite and particular colloidal states. Aside from colloidal or emulsifying activity cellular protein appears to have no place in the immune reactions studied.

Preserving Original Types of New Species of Bacteria.—Winslow calls the attention of the bacteriologist of America to the facilities offered at the Lister Institute and the Ameri-

can Museum and to urge on all who may describe new bacterial species the great importance of promptly depositing with the institutions named the original type strain so that it may be available for the comparative study of systematists in future years.

Journal of Biological Chemistry, Baltimore

January, 1921, 45, No. 2

- *Distribution of Carbon Dioxid Between Cells and Plasma. L. W. Smith, J. H. Means and M. N. Woodwell, Boston.—p. 245.
Relationship Between Cholesterol and Cholesterol Esters in Blood During Their Absorption. A. Knudson, Albany, N. Y.—p. 255.
Pentose Mononucleotides of Pancreas of Dogfish (*Squalus Sucklii*). C. Berkeley, Nanaimo, B. C.—p. 263.
Critical Investigation of Experiments with Diets Free from Fat-Soluble Vitamin. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 277.
Comparative Metabolism of Proteins of Unlike Composition. W. G. Karr, New Haven, Conn.—p. 289.
Rigor Mortis in Smooth Muscle; Chemical Analysis of Fibromyoma Tissue. E. F. Hirsch, Chicago.—p. 297.
Cultivation of Yeast in Solutions of Purified Nutrients. M. B. MacDonald and E. V. McCollum, Baltimore.—p. 307.
Determination of Sodium in Blood. E. A. Doisy and R. D. Bell, Boston.—p. 313.
*Distribution of Iodin Between Cells and Colloid in Thyroid. R. B. Van Dyke, Chicago.—p. 325.
*Production of Rickets and Similar Diseases in Rat by Deficient Diets. E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 333.
*Effect of Cod Liver Oil Administered to Rats with Experimental Rickets. P. G. Shipley, E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 343.
Iodometric Determination of Copper and Its Use in Sugar Analysis. I. Equilibria in the Reaction Between Copper Sulphate and Potassium Iodid. P. A. Shaffer and A. F. Hartmann, St. Louis.—p. 349.
Id. II. Methods for Determination of Reducing Sugars in Blood, Urine, Milk and Other Solutions. P. A. Shager and A. F. Hartmann, St. Louis.—p. 365.

Distribution of Carbon Dioxid Between Cells and Plasma.—As the blood passes from the arterial to the venous side of the circulation in normal man its cells gain from 4 to 11 volumes per cent. of carbon dioxide. At the same time, the corresponding gain in the plasma is only from 0.0 to 1.8 volumes per cent. The conclusion is drawn, therefore, by Smith and his associates, that the transport of carbon dioxide is accomplished mainly by the cells. The same holds true in anemia and in certain other diseases, even though because of alterations in the cell volume, plasma volume ratio the actual distribution of carbon dioxide between cells and plasma is altered.

Distribution of Iodin in Thyroid Gland.—Evidence is presented by van Dyke indicating that the concentration of intracellular iodine is independent of the suspending medium, whether that is pure Ringer's solution, Ringer's solution containing iodine-rich colloid material, or homologous blood serum. The ratio value was found to be relatively constant despite great variations in the morphology and iodine content of the glands examined.

Production of Rickets by Deficient Diet.—The work reported on by McCollum and his co-workers suggests that the cause of rickets might lie in a deficiency of fat-soluble A or calcium in the food, or a disturbance in the metabolism of these factors. It is only possible to say, however, that the etiologic factor is to be found in an improper dietetic regimen. The large variety of dietary formulas the administration of which results in rickets and kindred affection gives abundant evidence of the complex nature of the causes operating in the production of the disease.

Effect of Cod Liver Oil on Rickets.—The experiments made by Shipley and his associates afford evidence of the specific beneficial effect of cod liver oil on rats suffering with experimental rickets, in that some substance or substances in the oil cause calcium to be deposited in the same fashion in which deposition occurs in spontaneous healing of rickets in man. Moreover, they prepare the way for the elaboration of a new test for the determination of the calcium-depositing potentiality of any substance in terms of cod liver oil units. It is especially interesting to note in the present experiments with rats that calcium was deposited in the cartilages following the initiation of the cod liver oil treatment, in spite of the fact that in some cases the calcium intake was far below normal.

New York Medical Journal

Feb. 5, 1921, 113, No. 6

- Endocrinasthenia. W. V. P. Garretson, New York.—p. 221.
 Endocrine Exhaustion. G. H. Hoxie, Kansas City, Mo.—p. 225.
 Internal Secretions: As Conceived from the Point of View of Practical Physician. D. M. Kaplan, New York.—p. 227.
 Corpus Luteum of Menstruation and Pregnancy. W. H. Morley, Pontiac, Mich.—p. 230.
 Two Remarkable Cases of Testicle Implantation. G. F. Lydston, Chicago.—p. 232.
 Role of Endocrine System in Internal Medicine. A. S. Blumengarten, New York.—p. 233.
 Disorders of Internal Secretions in Children. M. B. Gordon, Brooklyn.—p. 239.
 Effect of Thymus and Mammary on Menstruation. A. Jacoby, New York.—p. 243.
 Thyroid Gland and Thyrotoxicosis. A. W. Hammer, Philadelphia.—p. 245.
 Management of Toxic Goiter with Radiation. J. T. Stevens, Montclair, N. J.—p. 247.

Physiological Reviews, Baltimore

January, 1921, 1, No. 1

- Origin and Conduction of Heart Beat. J. A. E. Eyster and W. J. Meek, Madison, Wis.—p. 1.
 Present Status of Problems of Anaphylaxis. H. G. Wells, Chicago.—p. 44.
 Photo-Electric Currents in Eye. C. Sheard, Southbridge, Mass.—p. 84.
 Evidence of Functional Activity on Part of Capillaries and Venules. D. R. Hooker, Baltimore.—p. 112.
 Carbon Dioxid Carriers of Blood. D. D. Van Slyke, New York.—p. 141.

Public Health Journal, Toronto

January, 1921, 11, No. 1

- *Tuberculosis Problem in Canada. G. D. Porer, Toronto.—p. 1.
 University in Relation to Nursing. E. Johns, Vancouver.—p. 6.
 Health Production and Disease Prevention. J. J. Middleton, Ontario.—p. 15.

Tuberculosis in Canada.—The estimated annual number of deaths from tuberculosis in Canada now amount to 9,096. In the Dominion census for 1901 the deaths were estimated at 9,709, a decrease during the past two decades of over 30 per cent. This decrease, Porter says, is due to three factors: (1) the lessened infection in the homes from which tuberculous patients have been removed to hospitals and sanatoriums; (2) the earlier recognition and the earlier and better treatment of patients both in their homes and in sanatoriums, and (3) the better home and living conditions, especially in regard to ventilation, sanitation and personal hygiene. He believes, however, that, while there is this decline, there have been, and still are, more deaths from tuberculosis than are reported. The Canadian Association for the Prevention of Tuberculosis and the numerous local associations throughout the dominion have done a large amount of educational work during the past twenty years, and as a result dispensaries, preventoriums, sanatoriums, hospitals and laboratories have been provided in various centers. Much legislation, such as notification, antispitting by-laws and disinfection has been passed. The federal government supports this association which works in cooperation with both the federal department of health and the various provincial health authorities, all of whom are represented on its executive.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

January, 1921, 15, No. 1

- *Training in Tuberculosis. H. Gauvain.—p. 1.
 *Infectivity of Tuberculosis. E. Ward.—p. 5.
 Sun Treatment of Surgical Tuberculosis. A. Rollier.—p. 10.
 Roentgen-Ray Treatment of Tuberculous Glands. M. Berry.—p. 13.
 Organization and Administration of a Public Tuberculosis Service. F. J. C. Blackmore.—p. 20.
 Impression of Liverpool Tuberculosis Conference. B. T. J. Glover.—p. 25.

Training in Tuberculosis.—It is Gauvain's belief that a thoroughly efficient tuberculosis service working with a well defined policy and in cooperation with the general practitioner would constitute the most efficient instrument in combating tuberculous disease. Till it is instituted, progress will be delayed, and disorient both within and without the service

will continue. When it is accomplished, advance will be rapid. It is to the man rather than to the method that the attention of the authorities should be directed. The method should follow the trained man, not vice versa.

Infectivity in Conjugal Tuberculosis.—Out of 156 cases in which the mate of a tuberculous husband or wife was examined, Ward found that ninety-one were tuberculous, sixteen suspect and forty-nine negative. Considering solely wives whose husband was first notified, out of 120 cases sixty-six were tuberculous, twelve suspect and forty-two negative; while among husbands of tuberculous wives (thirty-six cases), twenty-five were tuberculous, four suspects and seven negative. In fifteen cases, the tuberculous mate first notified has died, and in seven cases both husband and wife have died of tuberculosis. Ward takes the view that the great majority of the mates of tuberculous husbands or wives do sooner or later show signs or develop symptoms of tuberculosis but, the great majority of those infected recover, and make a speedier recovery, than most tuberculous patients.

British Medical Journal, London

Jan. 22, 1921, 1, No. 3134

- Application of Professional Lessons of War to Civil Work. H. M. W. Gray.—p. 109.
 *Splenic Anemia: Banti's Disease. B. Moynihan.—p. 114.
 *End Results of Colectomies for Intestinal Stasis. A. W. Sheen.—p. 116.
 Case of Diphtheriocephalus Latus Infection. G. C. Low and E. J. O'Driscoll.—p. 118.
 Economic Aspect in Eye Injuries: Plea for Early Treatment. T. L. Llewellyn.—p. 118.
 *Drooping Shoulder Sign of Phthisis. W. C. Rivers.—p. 120.
 *Ophthalmoscopic Appearances in Certain Rare Cases of Diabetes. R. T. Williamson.—p. 120.
 *Severe Tetanus Successfully Treated by Large Doses of Antitetanic Serum. T. V. Carey.—p. 121.

Splenic Anemia.—Moynihan states that the differential diagnosis of splenic anemia, as a rule, is not difficult. The mistake he has most commonly seen is the making of a diagnosis of gastric or duodenal ulcer. Five patients suffering from splenic anemia have been referred to him as an example of these diseases. The absence of a clear history of dyspepsia, the presence of an easily palpable spleen and the blood changes soon revealed the true condition. The contrary mistake may be made. In any doubtful case a roentgen-ray examination would almost certainly clear away the uncertainty and demonstrate the presence of a chronic gastric ulcer. The clinical history of this condition is reviewed by Moynihan. The only treatment, he says, is splenectomy. The appropriate moment for the removal of the organ is chosen. It is inadvisable to operate soon after a grave hemorrhage, or when the spleen is extremely large. In the latter case, the effect of radium on the tumor should be tried; almost certainly it will cause a rapid and considerable shrinkage in the organ. If this should be the case, splenectomy is done when the spleen is at its smallest, and before it has begun to enlarge afresh, as it will certainly do after a few weeks. No other form of treatment needs consideration. In the later stages the mortality of operation is higher, amounting to 25 per cent., as compared with an average of about 10 per cent. In the terminal stages operation becomes so dangerous that only the inevitably fatal outcome of the untreated disease justifies its performance.

End Results of Colectomies for Intestinal Stasis.—Four cases are analyzed by Sheen. One terminated fatally soon after operation. In the remaining three there is great improvement, which in two might be termed complete success. The qualifying details are: In the first case a ventral hernia with dyspeptic symptoms; in the second, adhesions, fortunately not interfering with pregnancy; in the third, diarrhea occasionally. Sheen contends that there are more surgical ways than one of curing toxic stasis, and that every case should be treated in accordance with the special indications it presents. He does not advocate surgery as the only remedy. Diet, drugs, aperients, paraffin, massage, exercises, posture, abdominal supports, regulation of life, change of climate, spa treatment, removal of toxic foci—all have their place in the treatment of intestinal stasis. In treatment, operative and nonoperative, the psychic factor must not be overlooked. The prevention of stasis and toxic foci should begin in babyhood and continue. The earlier the treatment

the better, and then the less severe and the more effective it is.

Drooping Shoulder Sign of Phthisis.—Rivers has noted that in about 50 per cent. of cases of pulmonary tuberculosis on the affected side, or (generally) the side of more extensive or older disease, the point of the shoulder and the nipple are lower than on the other side; the nipple is also smaller and seems to lie further back. Behind, the scapula is lower—its inferior angle may reach 3 inches below that of its fellow—and is at a different distance from the spine, mostly nearer to it. Muscular atrophy also is noticeable, a little of the pectorals, but far more of the upper part of the trapezius. The superior border of that muscle, instead of running straight from neck to shoulder, is flattened, wasted, hollowed out, so that, as compared with the opposite side, much less of it shows above the clavicle when viewed from the front, and above the spine of the scapula when viewed from behind. The sign occurs indifferently in men and women, although more marked in the former; and as regards association with the type of phthisis, in this order of descending frequency—juvenile hilus cases, a rather large proportion; third stage cases (Turban-Gerhardt), very nearly half; first stage cases, nearly half; second stage cases, about a quarter. Rivers has seen it develop in the course of a few weeks.

Retinal Blood Vessels in Diabetes.—Williamson calls attention to the fact that in certain very rare instances, associated with a special blood condition, the retinal blood vessels, instead of having the normal deep red color, all appear milky white or pinkish white, while the rest of the fundus has the normal red color.

Severe Tetanus Treated Successfully by Antitetanic Serum.—In the case reported by Carey antitetanic serum was given intrathecally (after lumbar puncture), intramuscularly and subcutaneously. Altogether, 94,500 units were given in the course of twelve days. There was no evidence of ill effect. To prevent bringing on convulsions, an anesthetic was given for all injections, except the subcutaneous. There was a marked serum rash, which cleared up soon after serum treatment was discontinued. In addition, a mixture of potassium bromid, 8 grains, and chloral hydrate, 8 grains, was given thrice daily.

Lancet, London

Jan. 22, 1921, 1, No. 4

- *Surgery of Spleen. B. Moynihan.—p. 157.
- *Inoperable Uterine Carcinoma Treated by Cold Cautery Method of Percy. Series of Forty-Three Cases. P. P. Cole.—p. 163.
- Anxiety Psychoneurosis. A. Carver.—p. 167.
- Dissection of Fauical Tonsils Under Local Anesthesia. W. Morris.—p. 169.
- Indications for Removing Tonsils by Dissection or by Reverse Guillotine. M. Vlasto.—p. 169.
- *Case of Persistent Hiccup; Complicated with Spasm of Larynx. M. Sarkies.—p. 171.
- *Case of Hiccups: Isolation of an Organism. C. E. Jenkins.—p. 171.
- *Treatment of Nervous Insomnia. T. Zangger.—p. 172.

Surgery of Spleen.—Instead of searching only for the existence of this or that splenic disease, Moynihan says, an inquiry should be directed to the determination of the functional capacity of all the various organs likely to be deranged. This derangement must be regarded not merely as a restriction of the morbid changes to the spleen, but as a disturbance of wide ramification throughout the whole body, affecting one or other, or, perhaps, even all of the four systems in which the spleen plays a part. It may be that splenectomy in any of these diseases will remove the obvious culmination of the morbid process, and thus bring about a "cure" of the disease or an arrest of its development; but it does not by any means follow what all the other related parts are thereby caused to return to their normal states. Absence of symptoms does not imply the restitution of normal functions.

Cold Cautery in Treatment of Inoperable Uterine Carcinoma.—Cole urges that this operation, particularly when reinforced by consequent radium treatment, should have a place in the armamentarium of a surgeon who would endeavor to undertake the treatment of inoperable cancer. With the cautery and radium together, used discreetly and discriminately, a great deal may be done, perhaps more than has been done, to alleviate the distressing disabilities of inoperable uterine cancer, and in many cases to restore to those suffer-

ing derelicts peace of mind, together with the chance of an increased term of economically useful life.

Persistent Hiccup.—In Sarkies' case a milk diet in an "acid" subject (rheumatic) produced much flatulence, some of which was belched up, the sudden forceful rush of wind upward producing a closure spasm in a tired and overstrained larynx. The milk diet was stopped. The patient was given an alkaline mixture with some ammonium bromid in it, a saline draught each morning, and the diet ordered was one of boiled fish, chicken broth, and a little thin bread and butter, with half an ounce of whisky in a wineglass of water twice a day. In twenty-four hours the spasms were decidedly less severe and less frequent, and in another twenty-four hours both the hiccup and the spasm had entirely subsided. The hiccup had lasted six days and six nights for perhaps twenty hours out of the twenty-four and occurred not as a single hiccup but in a series of from five to eight rapid percussions with an interval of a few second between each series; and the laryngeal spasms had lasted forty-eight hours. The patient made a rapid and uninterrupted recovery.

Bacillus Found in Hiccup.—A peculiar epidemic of hiccups has appeared in various parts of Europe. It seems to have started in Austria and spread to England by way of Switzerland and Paris. It appears to be accompanied by mild catarhal symptoms in many cases. A patient examined by Jenkins had a profuse yellow nasal secretion of thin consistency. Besides staphylococcus, a very minute bacillus indistinguishable from *B. influenzae* was found in culture plates. The organism was gram-negative but did not take any of the ordinary stains well. A fairly strong solution of carbolfuchsin was necessary in order to obtain a well stained film. The colonies and films from subcultures did not differ from those of the original culture. No growth occurred on plain nutrient agar.

Treatment of Nervous Insomnia.—Zangger's treatment of nervous insomnia consists of a combination of medicinal and psychic treatment. For from four to eight days he prescribes 8 grains of veronal or sodium veronal to secure from the very first from three to six hours of sleep every night, thereby quieting the patient and giving him confidence. Afterward he gives two tablespoonfuls of a solution of sodium bromid (1 in 20) just before supper, and adds for a week half doses of veronal. As improvement continues, the latter are reduced to half doses every other day for a week, and are then discontinued completely. At the end of a month, the bromid can also generally be reduced gradually to three quarters or even half the amount. The whole bromid treatment lasts from one to three months according to the severity of the case. As a tonic after the bromid treatment lecithin injections are often of great value. The psychic treatment to reeducate the patient's mind and will.

Tropical Medicine and Hygiene, London

Jan. 15, 1921, 24, No. 2

- *Patient Harboring *Schistosoma Japonicum* Cured by Tartar Emetic. F. G. Cawston.—p. 13.
- Suggestions for Further Research in Schistosomiasis. F. Milton.—p. 13.

***Schistosoma Japonicum* Infestation Cured by Tartar Emetic.**—Cawston's patient had been through a prolonged course of injections with emetin for dysentery without apparently the slightest effect on the schistosomes. He had been ill thirteen years. Examination of the feces revealed the presence of only one nonspined egg containing a miracidium. As a definitely positive reaction had been obtained to the antigen test nine days previously, a series of antimony injections had already been commenced. The initial dose injected was one-half grain antimonium tartrate dissolved in 2 c.c. of boiling distilled water just before use. Three-fourths grain was given on the second and fourth days, and 1 grain on the sixth day. In all he received 20.5 grains antimonium tartrate and 1.5 grains sodium cacodylate. The patient did not seem to tolerate arsenic at all well, so that it was not continued. One and five-eighths grain was the largest dose of tartar emetic in solution given. For this he developed the usual tolerance though the drug produced a good deal of depression during the first ten days. Two months after the beginning of the treatment, the reaction of the blood serum was negative.

Bulletin de l'Académie de Médecine, Paris

Jan. 4, 1921, 85, No. 1

Helminths in Pathology of Digestive Tract. M. Labbé.—p. 16.

Bulletin Médical, Paris

Nov. 20, 1920, 34, No. 55

Small Surprise Tumors. A. Guéniot.—p. 1039.
Hexamethylenamin. E. Desesquelle.—p. 1040.

Nov. 27, 1920, 34, No. 56

*Exophthalmic Goiter. G. Roussy and L. Cornil.—p. 1057.
*Operative Treatment of Exophthalmic Goiter. A. Cauchoix.—p. 1060.
*Radiotherapy of Exophthalmic Goiter. J. Belot.—p. 1063.
*Medical Treatment of Exophthalmic Goiter. E. Coulaud.—p. 1066.

Exophthalmic Goiter.—Roussy and Cornil discuss the pathologic physiology and the various tests for toxic goiter, citing frequently from American literature. They say of the alimentary hyperglycemia test that a negative reaction alone is decisive. With injection of 5 to 15 cg. of an extract of the superior lobe of the pituitary, the pulse becomes accelerated in normal persons, while with exophthalmic goiter the pulse grows slower and the glycosuria is more pronounced. Another pituitary test is the reaction to subepidermic injection of pituitary extract: a bluish spot surrounded by a white halo, turning to red, in case of exophthalmic goiter.

Operations on the Thyroid.—Cauchoix' article is mainly a summary of works in THE JOURNAL and other American publications.

Radiotherapy in Exophthalmic Goiter.—Belot is *chef de laboratoire* at the Saint-Louis Hospital, and he reports partial improvement in 20 per cent. of forty-five cases of exophthalmic goiter given roentgen-ray treatment; 70 per cent. with definite and prolonged improvement, and no benefit in 5 per cent. of those that completed the course. He declares that this treatment started in time gives surprising results; it is more promptly effectual in the acute forms. Operative treatment should not be considered until after the failure of radiotherapy, with typical exophthalmic goiter. In the abortive cases, the cure is often very prompt but recurrence is sometimes observed. With simple toxic goiter, with neoplasms of the thyroid, and cystic goiter with symptoms of intoxication, radiotherapy is often powerless and sometimes contraindicated. The galvanic current may be a useful adjuvant. He reiterates in conclusion that radiotherapy is the best of all treatments to date for hyperthyroidism.

Medical Treatment of Exophthalmic Goiter.—Coulaud warns that syphilitic exophthalmic goiter is particularly amenable to treatment, and that the thyroid is rich in both arsenic and iodine. To give either of these drugs with hyperthyroidism is dangerous. He has been impressed with the action of ovarian treatment; this seems to relieve the thyroid of much of the extra work. Testicle extract in men has yielded some improvement but not to compare with ovarian treatment in women, as insufficiency of the ovaries, he thinks, is at the base of almost all of these syndromes of hyperthyroidism. In typical exophthalmic goiter, the benefit is not so pronounced.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 10, 1920, 44, No. 38

Double Congenital Hydronephrosis. Variot and Walter.—p. 1496.

*Cancer of Lung. M. Renaud.—p. 1502.

*Oculocardiac Reflex after Neurotomy. Sicard and Paraf.—p. 1506.

*Multiple Osteogenous Exostoses. Garnier and Bloch.—p. 1507.

*Pregnancy in Myeloid Leukemia. L. Rénon and Degrais.—p. 1511.

*Chronic Lethargic Encephalitis. De Massary and Boulin.—p. 1516.

*Contents of Fasting Stomach. G. Hayem.—p. 1523.

*Paroxysmal Dyspnea in the Elderly. J. Lhermitte, S. Cornil and E. Peyre.—p. 1529.

Cancer of Lung.—In Renaud's case the young man had been apparently healthy during five months after entering on barrack life. Then there were a few vague, transient functional symptoms from the lungs, and finally a little dyspnea on exertion. Then came suddenly symptoms as if the superior vena cava had been ligated, rapidly fatal. Death thus occurred in seven months after he had been certified as fit for military service. Necropsy revealed a large primary epithelioma of the lung. The tumor with a rapid symptomless course had not spread beyond the pleura, being restricted to the mediastinum.

The Oculocardiac Reflex.—Sicard and Paraf relate that in three patients who have had the trigeminal nerve severed to cure neuralgia, the oculocardiac reflex is abolished on the operated side while it persists normal on the intact side. They accept this as demonstrating that the trigeminal nerve is involved in starting this reflex.

Radium Therapy of Myeloid Leukemia.—The outcome is reported in a number of cases of myeloid leukemia given radium treatment from seven to eight years or more previously. One of the patients given several series of exposures passed through a normal pregnancy, and her child is now over 5 years old and healthy. Three series of exposures of the spleen had been made during the pregnancy. The woman died a year after the childbirth; the recurrences had become graver and the intervals shorter as the efficacy of the curietherapy seemed to become exhausted.

Chronic Epidemic Encephalitis.—De Massary and Boulin report the case of a young housemaid with chronic progressive encephalitis fatal the ninth month. In a second case in a woman of 57 the brief periods of somnolency escaped attention on account of the intense neurasthenia, and the typical symptoms of the lethargic encephalitis did not become manifest until ten months later. It is almost impossible, they say, to distinguish between an ordinary case of epidemic encephalitis, entailing sequelae, and these chronic progressive types; but the outlook with the latter is graver as they are more liable to progress to a fatal termination. In the discussion that followed, Netter related that a girl who had had epidemic encephalitis in March, 1918, with a grave and prolonged course has quite recently developed diplopia and other symptoms of paralysis of the third pair. Dufour reported the recent reappearance of epidemic febrile hiccup in two patients who had had epidemic febrile hiccup a year before.

The Content of the Fasting Stomach.—Hayem declares that the stomach should be empty after digestion is concluded, and that the discovery of fluid in the morning fasting stomach is always a sign of abnormal conditions which otherwise might escape detection. In this part of his report he discusses the significance of a fluid content with a concentration of less than 0.010 or more than 0.012.

Paroxysmal Dyspnea.—Lhermitte and his co-workers refer to dyspnea occurring without apparent cause in the elderly. Their suspicion that it was due to some physical, nonchemical, modification of body fluids, was confirmed by the sudden arrest of the paroxysm of dyspnea which followed at once an intravenous injection of a hypertonic solution of glucose.

Presse Médicale, Paris

Jan. 12, 1921, 29, No. 4

*Antihemorrhagic Serum. H. Dufour and Y. Le Hello.—p. 33.

*The Blood Formula with Retention of Chlorids. A. Pruche.—p. 35.

Serum Treatment of Hemorrhage.—Dufour and Le Hello report further instances of the prompt arrest of hemorrhage under the action of the serum from sensitized rabbits. Anaphylactic reactions are induced in the animals, and these confer extra coagulating properties on their serum. For the technic for producing this *serum sérique*, as they call it, they refer to their previous publications, one of which was summarized in THE JOURNAL, Nov. 8, 1919, p. 1477.

The Blood Formula with Retention of Chlorids.—Pruche declares that it is futile to test the blood serum for its sodium chlorid content, as this is invariably in a certain percentage. It never fluctuates, because water is always retained to maintain this proportion at a constant level. Hence, he adds, there is no diuretic so powerful as mere abstention from sodium chlorid. The water in the body is cast off to correspond to the lesser sodium chlorid content. With retention of sodium chlorid, there is also retention of water to correspond, but the dry residue of the blood, exclusive of the sodium chlorid, is not augmented. Consequently, the discovery of lesser concentration of the dry residue is a sign of abnormal retention of water and thus, indirectly, of retention of sodium chlorid. This edema of the blood may long precede actual edema of the tissues. Whenever the sodium chlorid content of the dry residue of the serum is found above normal, we should apply

at once the proper measures to ward off edema, especially abstention from salt, without waiting for further signs of retention of sodium chlorid.

Revue Franç. de Gynécologie et d'Obstét., Paris

September, 1920, 15, No. 9

*Treatment of Complicated Abortions. J. Vanverts.—p. 361.
Radiotherapy of Uterine Myomas. P. Darbois.—p. 369.

Treatment of Complicated Abortion.—Vanverts analyzes six cases of death after induced abortion, out of a total of ninety-nine cases of septic abortion treated by curetting. This mortality of 6 per cent., he exclaims, is very different from the 67 per cent. mortality of those who rely on expectant treatment. In his six fatal cases the conditions precluded recovery in some, and in the others the outcome would probably have been the same whatever treatment had been applied. He insists that the fear of perforation should not deter from evacuating the uterus in such cases, but it must be done with skill. In three cases he had to remove the uterus which had been perforated in curetting by other physicians.

Revue de Médecine, Paris

September, 1920, 37, No. 9-10

Pituitary Polyuria. E. Schulmann and R. Desoutter.—p. 441. Conc'n in No. 11, p. 520.

*Mechanism of Respiration. M. Creyx.—p. 467.
Flaccid Paralysis of Hand. Pitres and Laffaille.—p. 478. Conc'n.

Mechanism of Respiration.—Creyx refers to the work of the skeleton of the thorax in both normal and in diffuse pulmonary emphysema. His data conflict with the theory on which Freund bases his chondrectomy to relieve emphysema with rigid shoulder girdle.

Schweizerische medizinische Wochenschrift, Basel

Jan. 6, 1921, 51, No. 1

*Poisoning from Bread. W. Silberschmidt.—p. 1.
Parkinsonism as Sequel of Lethargic Encephalitis. R. Bing.—p. 4.
*Postencephalitic Insomnia. W. Rüttimeyer.—p. 7.
*Prophylaxis of Endemic Goiter. R. Klinger.—p. 12.
Treatment of Spontaneous Pneumothorax. N. Betchov.—p. 15.

Poisoning from Bread.—Silberschmidt reports that of 190 persons buying bread from a certain bakery one day in May, 90 per cent. showed signs of poisoning, vomiting, abdominal pains and diarrhea and some fell unconscious; others had redness and swelling of the face next day. All recovered in from one to four days. Dogs fed with the bread vomited also. Absolutely nothing could be found to explain the poisoning. All chemical and other tests were negative. The flour contained 20 per cent. cornmeal.

Postencephalitic Insomnia.—Rüttimeyer reports from Zurich eight cases in which children of 5 to 8, after an acute febrile disease, influenza or epidemic encephalitis, were unable to drop to sleep until 4 or 5 a. m. This inability to sleep kept up for three or six months or more. In two other cases this extreme insomnia was a feature of epidemic encephalitis. Pfaundler has reported a similar series of cases of post-encephalitic insomnia in children at Munich. The Zurich group seemed mostly normal otherwise. Some of them took a tranquil nap in the afternoon. No benefit was derived from sedatives, but when the child was taken to the hospital and psychotherapy applied, the insomnia yielded in all except the cases with signs of persisting organic lesions in the brain.

Prophylaxis of Endemic Goiter.—Klinger introduced on a large scale treatment of schoolchildren with tablets of sodium iodid in regions where goiter is endemic. There were no signs of intolerance, among the over 1,000 children taking the tablets for long periods, some up to sixteen months. The results are said to have been conclusive, demonstrating that schoolchildren can be kept free from or cured of goiter by this simple means, taking 3, 4 or 5 mg. of iodid in the week for part of the year.

Annali d'Igiene, Rome

October, 1920, 30, No. 10

*Serodiagnosis in Typhus. G. Sampietro.—p. 593.
Defense in Italy Against Plague. F. Piccininni.—p. 604.
*Entameba Found in the Tonsils. E. Tibaldi.—p. 613.
*Parasites of Field Rodents. A. Splendore.—p. 622.
*The Bacteriophagum. V. Puntoni.—p. 643.

Serodiagnosis of Typhus.—Agglutination of the proteus X occurred constantly in Sampietro's numerous tests with typhus patients, but not until the end of the first week or later. The test was positive also in 5.5 per cent. of normal serums at a titer of less than 1:100, and it was positive at a higher titer than this in 18 per cent. of the typhoid cases tested. It was never found positive in any eruptive disease. Fully 63 per cent. of the serums giving a positive proteus X reaction agglutinated likewise *Bacillus pyocyaneus*.

Entameba Found in the Tonsils.—Tibaldi has named the ameba he has found in two out of twenty cases of diseased tonsils, *Entameba macrohyalina*, as he thinks it is a new species. He gives twelve colored photomicrograms of it. In both of the two cases there was concomitant otitis, plus mastoiditis in one case.

Parasites of Field Rodents.—Four colored plates accompany this concluding instalment of Spendore's account of his extensive research. One reproduces sixty-eight photomicrograms of one of the various parasites discovered and the lesions they produce.

The Bacteriophagum.—Puntoni summarizes Twort's and d'Herelle's recent research on what they call bacteriophagia, that is, a bacteria-destroying property possessed by certain cultures. The fluid from these cultures, transferred to other cultures, kills the bacteria in them. Twort ascribed it to a disease of the micrococci he was investigating. D'Herelle, on the other hand, noted the phenomenon in filtrates of dysenteric stools, finding that cultures of the dysentery bacillus were killed by this filtrate, and the killed culture then became bactericidal for other cultures. This same phenomenon could be produced with typhoid and a number of other infectious diseases. He is inclined to ascribe the phenomenon to a single species of bacteriophages always existing in the bowel, and in normal conditions acting on the colon bacillus. He suggests for it the name *Bacteriophagum intestinalis*. He has cultivated a single strain through more than a thousand cultures without loss of its bactericidal property. It seems to be an obligatory parasite, proliferating only when in contact with the live bacteria for which it is pathogenic. Kabeshima has a strain still potent after four years. It does not seem to be affected by alcohol, acetone, ether, chloroform or temperatures below 70 C. Opinions differ as to whether this bacteriophagum is a soluble enzyme, a formed body, or an invisible virus. D'Herelle states that the presence of this bacteriophagum coincides with the turn for the better in the infectious disease in question, suggesting some connection with immunity. Metalnipow found that certain larvae receptive to the Shiga bacillus, which kills them in twenty-four hours, can be protected against its action by this bacteriophagum.

Policlinico, Rome

December, 1920, 27, Surgical Section No. 12

*Tuberculous Ulcers of the Commissures. G. Bettazzi.—p. 381.
*Tumors of the Salivary Glands. L. Cevario.—p. 390.
*Acute Osteomyelitis of the Ribs. G. Fantozzi.—p. 408.

Tuberculous Ulcers of the Commissures.—Bettazzi's patient was a man of 46 who developed a tuberculous ulceration in the mucosa of the left commissure of the lips, rebellious to medical measures, and excised after four months. Then a similar lesion developed at the right commissure, exactly like the other. On suspicion of syphilis, specific treatment had been applied but without benefit. One enlarged gland in the region was excised at the same time. The first lesion was of dubious diagnosis, but the tuberculous nature of the second was beyond question. He compares this case with others on record, and emphasizes the initial leukoplasic substratum on which the tuberculous process developed, with hypertrophy at first and then ulceration. No other tuberculous focus was known except a pleural affection which had been apparently cured a number of years before, but this flared up anew under the influence of the exogenous reinfection with localization at the mouth.

Tumors in Salivary Glands.—Cevario discusses mixed tumors in general and then mixed tumors of the salivary glands in particular, reporting two cases of the latter in young women, with photomicrograms. One had been diag-

nosed as a fibro-enchondroma of the parotid gland, but proved to be a mixed tumor with several unusual features.

Acute Osteomyelitis of the Ribs.—Fantozzi tabulates from the literature 50 cases of acute osteomyelitis of the ribs, and adds another case to the list. In the total 51 cases, 14 were in children under 5; 11 between 5 and 10, and 12 between 10 and 20. In 2 cases the costal osteomyelitis had followed shortly after furunculosis. Inflammatory lesions on the scalp are common in the history of the cases, as also eruptive diseases and pathologic conditions in the lungs. In 2 cases it followed measles; in 6, pneumonia, and in one varicella. The infection seems to be always blood-borne. In 40 of the cases only one rib was affected, and the seventh rib was the one most frequently involved, while the first rib was never affected. In nearly half the cases a sequester was found. His list does not include any known tuberculous cases. The symptoms are those of a deep abscess. No instance is known of perforation into the pleural cavity. The conditions with which it is most liable to be confused are neuralgia, articular rheumatism, pleurisy and pneumonia, and, after the abscess has formed, mastitis, a subpectoral or pararenal abscess or empyema. It is probably more prevalent than is shown by the records, and diagnostic mistakes have probably occurred. The staphylococcus is the micro-organism generally involved, but in his case and in one of Canon's, the streptococcus was found. The data presented seem to show that the indispensable surgical treatment should be early and extensive.

Rivista Critica di Clinica Medica, Florence

Nov. 25, 1920, 21, No. 33

*Hyperchlorhydria and Vagotonia. C. Talentoni.—p. 385.

Hyperchlorhydria and Vagotonia.—Talentoni gives the details of five cases of hyperchlorhydria, including some with gastrosuccorhea. Symptoms of cardiac vagotonia were unmistakable in all. In a sixth case there was pronounced hyperchlorhydria but no indications of vagotonia. In still another case there was pronounced vagotonia but no hyperchlorhydria. A possible explanation for this various behavior is the elective action on the nervous system of toxins and hormones, curare, for instance. Another example of this toxic action is the injury of certain nerves by diphtheria, syphilis or other viruses. The vagotonia may affect the lungs alone, and then there is asthma; or the heart alone, or the stomach alone, causing hyperchlorhydria, but all these effects might be due to hormones as well. All these three pathologic conditions have intervals of quiet, and treatment should aim to hasten these intervals of repose. Talentoni says that on this theoretic basis he gives a mixture of the three tinctures of the solanaceae.

Anales de la Facultad de Medicina, Lima

September-October, 1920, 3, No. 17

- *Mycoses in Peru. E. Escomel.—p. 95.
- *Influence of World War on Medical Education. J. Arce.—p. 101. Cont'd.
- *Blastomycosis in Peru. S. Lozada Benavente.—p. 109.
- *Mental Capacity of Lima Schoolchildren. F. Chueca.—p. 122. Conc'n.
- *Relapsing Fever in Peru. E. del Prado.—p. 134.
- *Pharmacology of the Myroxylon Peruiferum Lin. fil. A. Maldonado and N. Esposto.—p. 153. Conc'n.

Certain Mycoses in Peru.—Escomel gives an illustrated description of four different types of mycosis affecting the feet. One is a typical *pinta*, with patches over the body. In the others a trichophyton, penicillium or discomyces was responsible for the lesions.

Effect of War on Science.—Arce remarks that since the close of the World War there has been a special focusing of interest on tropical diseases and on measures to improve medical education. Both of these subjects are of vital interest to Peru, and he discusses recent achievements in these lines.

Blastomycosis in Peru.—The heart of tropical America seems to be the special home of blastomycosis which must be distinguished from the lesions resembling it for which leishman bodies or other agents are responsible, especially the group of tropical ulcers known as *espundia*. The discovery by Escomel in 1914 of the blastomyces in certain cases explained the failure of the treatment which is effectual in leishmaniasis. Since then blastomycosis has been differentiated in Bolivia, Brazil, Uruguay and Paraguay, and Lozada

here describes a large number of advanced cases affecting face and throat after five or six years of the disease. There was no actual suppuration in any of the ulcerations, but the parts affected increased remarkably in size, the lower lip for instance hanging down to cover almost the entire lower jaw. He had opportunity for postmortem examination in a large number of these blastomycosis patients who had succumbed to influenza, but he never found any signs of the process below the vocal cords.

Relapsing Fever in Peru.—Del Prado's experience has confirmed the efficacy of neo-arsphenamin both in treatment and in prophylaxis of relapsing fever. The louse seems to be the only means of its transmission in Peru.

Pharmacologic Study of Myroxylon.—In this concluding portion of their study of the trees producing balsam of Peru, Maldonado and Esposto describe with twenty plates *Myroxylon peruiferum*, *Myroxylon pereirae* and others, and review the history of balsam of Peru, with an extensive bibliography.

Brazil-Medico, Rio de Janeiro

Nov. 6, 1920, 34, No. 45

- *Case of Malignant Endocarditis. Ribeiro da Silva.—p. 731.
- *Pseudo-Cyst in Posterior Cavity of Omentum. P. Cezar de Andrade.—p. 733.
- The Milk Supply of Rio de Janeiro. C. Barreto.—p. 734.
- Copper Sulphate in Puerperal Infection. A. Amaral.—p. 739.

Malignant Endocarditis.—Ribeiro da Silva remarks that the insidious onset and proteiform manifestations, in connection with the rarity of this disease, render it difficult to diagnose at first. In a case described, the girl of 18 had a syphilitic father and she had had several attacks of acute articular rheumatism, and the family would not allow radical treatment of the chronic tonsillitis. The first symptoms had been fever, general malaise, pains in muscles, joints and head, and purpuric spots on one hand, the spots very tender. The fever, continuous at first became intermittent. The malignant endocarditis was confirmed by necropsy, after death from pulmonary edema over four months later.

Omental Pseudocysts.—There was no history of traumatism, but the girl of 18 had had stomach symptoms for some time with frequent nausea and vomiting, and a tumor could be palpated in the epigastrium, toward the right. The operation revealed a large cyst in the posterior cavity of the omentum; it was sutured to the lips of the incision. The contents were a bloody fluid with several clots.

Crónica Médica, Lima

December, 1920, 37, No. 690

- Endemic Goiter in Urubamba District of Peru. C. Monge.—p. 394.
- *Sterility from Narrow Uterine Cervix. E. Escomel.—p. 416.

Treatment of Sterility from Narrowness of the Uterine Cervix.—Escomel deplors the resort to surgical measures in such cases as entirely unnecessary. The first thing is to exclude azoospermia. Then a laminaria tent is introduced into the woman's cervix down to the fundus of the uterus, selecting one fine enough to be worked through the cervix. It is introduced between the eighth to fifth day before the anticipated menses. The next day this tent is withdrawn and a larger one introduced, and this is withdrawn the next day. By this means the cervix is dilated without harm, except that the tents may sometimes induce pain, but this is bearable. An interval of not more than an hour or two should elapse after the cervix has been thus dilated and the reception of the semen. He has thus successfully treated sterility in six women, and commends the revival of this old method of treating sterility. The tents were held in place with gauze and cotton in the vagina.

Gaceta Médica de Caracas, Venezuela

Nov. 30, 1920, 27, No. 22

- *Hemoglobinuric Fever. G. Delgado Palacios.—p. 277.
- Discussion of Case of Dystocia. J. Arráiz.—p. 278.
- Second Case of Spirochetal Jaundice in Venezuela. H. Cuena.—p. 280.
- Glaucoma. A. Jiménez Arráiz.—p. 283.
- Appendicitis in the Elderly. L. Razetti.—p. 285.
- Prophylaxis of Venereal Disease. L. Razetti.—p. 286.

Causes of Blackwater Fever.—Delgado Palacios recalls that hemolysis may have different causes, and that it is possible

for the physician to trace it to its source and thus be able to apply logical treatment. One important cause of hemolysis is a reduction in the osmotic tension of the blood serum. When the sodium chlorid content of the serum is unusually low, the corpuscles are liable to burst. If the freezing point of the blood is found at the normal figure in a case of hemoglobinuria, there is no reason for injecting a hypertonic saline solution. But when the sodium chlorid content is very low—as he has sometimes found it in pernicious malaria—rapid recovery is liable to follow hypertonic saline infusion. In malaria there is no tendency to retention of chlorids in the blood, and this renders it easy to understand the complication with hemoglobinuria. Bile salts and alkaline soaps are also liable to induce hemolysis when they occur in abnormal amounts owing to malfunction of the liver. Chemical insufficiency of the liver may thus cooperate in inducing hemoglobinuria. A third group of agents causing hemolysis includes ether, chloroform and quinin. When the osmotic tension is low and the liver insufficient, the quinin may be the drop that makes the glass overflow. The malfunctioning of the liver upsets the normal balance between the substances which promote and which check hemolysis, such as lecithin and cholesterol. Still another cause for hemolysis may be found in the toxins from helminths. Treatment of hemolytic conditions therefore, and prophylaxis, require discrimination and the use, as the case may be, of hypertonic saline infusion, cholagoges, quinin or vermifuges.

Repertorio de Medicina y Cirugía, Bogotá

November, 1920, 12, No. 2

- *Tumors of the Kidneys. M. J. Luque.—p. 64. Idem. C. Tirado Macias.—p. 72.
- *Trichocephalus as Cause of Chronic Appendicitis in the Tropics. A. Echeverría Marulanda.—p. 82.
- *Pellagra in Colombia. G. Olózaga.—p. 86.

Kidney Tumor.—Luque gives an illustrated description of a case of lipofibrosarcoma of the right kidney in a woman of 42. It weighed 33 kg. The tumor had never caused symptoms except those of mechanical origin. There had been no hematuria, and the pains in the anterior abdomen had long been mild. Tirado Macias disagrees with Luque as to the nature of this tumor, his assumption being that it had grown as a hypernephroma in the adipose capsule of the kidney.

Trichocephalus Responsible for Chronic Appendicitis.—Echeverría relates that the trichocephalus was found in sixteen of twenty operative cases of appendicitis in Colombia. In three cases from six to ten of the parasites were discovered. He thinks that this finding of the trichocephalus in tropical countries in connection with chronic appendicitis deserves greater attention.

Pellagra.—Olózaga declares that, at least in Colombia, the principal factor in pellagra is an intoxication from alcohol. There it is from the native drink chicha. He describes various features of pellagra and the factors favoring it in Colombia, and means to avoid them.

Revista de la Asoc. Med. Argentina, Buenos Aires

October, 1920, 33, No. 192

- *Intracranial Hypertension: Physiology and Pathogenesis. B. A. Housay.—p. 477; Symptoms and Diagnosis. R. Chiappori.—p. 487; Ophthalmology. A. Natale.—p. 511; Operative Treatment. E. Finochietto.—p. 528; Three Cases. J. C. Montanaro and T. González.—p. 552; Pseudo Brain Tumor. R. Sánchez Elia.—p. 560; One Case. A. Segers.—p. 565.

Intracranial Hypertension.—The articles in this number of the *Revista* represent a symposium at a three day meeting of the Argentine Medical Association. Finochietto reported some successful cases of operation for traumatic aphasia or paralysis of the hand promptly cured by correcting the depression of the skull from an accident. In one case of fracture of the base the craniectomy showed contusion of the brain and a large clot. Its extent made its removal impossible. He sutured the dura, and the symptoms completely disappeared, although slowly and gradually. He recommends a similar operation for intradural tardy hemorrhage. In the three cases reported by Montanaro and González, treatment for syphilis plus lumbar puncture cured one case; the third seemed to be merely serous meningitis as complete recovery

followed lumbar puncture. In the other case the man of 50 died from the effect of the hydrocephalus following chronic serous meningitis, not benefited by mercurial treatment or lumbar puncture. In the discussion that followed, Rivarola urged the necessity for ophthalmologic examination at the first symptoms of pressure on the brain. He does not approve of routine treatment for syphilis in these cases, especially in children as precious time is wasted, and in his compilation of 140 cases of brain tumors in children, there was only one of syphilitic gumma. In this case systematic mercurial treatment for nine months had not seemed to modify the gumma, as was found at necropsy; the child died soon after the operation. He insists that treatment for syphilis should not be kept up for more than two or three weeks if no benefit is apparent. R. Finochietto recalled that the Cushing decompressive operation has not always given good results in his experience. Relief is transient, sometimes, and the symptoms return. Chutro in his experience in Babinski's service during the war, found the results much better when the dura was not opened, while the relief was almost as prompt and more durable than with the Cushing technic.

Revista Española de Medicina y Cirugía, Barcelona

November, 1920, 3, No. 29

- *Sudden Distention of Gallbladder. I. Noguerras.—p. 583.
- *Stain for Elastic Fibers in Sputum. R. Dargallo.—p. 588.
- Premature Separation of Placenta. J. M. Vilaplana.—p. 590.
- Imaginary Pharyngitis and Rhinitis. P. Borrás y Torres.—p. 591.
- Deep Roentgenotherapy for Cancer. C. Comas and A. Prió.—p. 593. Con'n.

Sudden Distention of Gallbladder.—The multipara of 55 presented fever and pains suggesting severe hydronephrosis, but a history of dyspepsia, nausea and moderate pain in the stomach after eating, occasional vomiting, and tenderness in the epigastrium and gallbladder region, and a knowledge of a tendency to cholelithiasis in her mother and in one daughter, turned the scale in favor of the diagnosis of gallbladder mischief. Noguerras states that in cases of not very definite dyspepsia, with nausea, he has the patient stand, and presses on the right iliac fossa while the patient tries to draw a deep breath. This induces intense pain in the gallbladder if this is diseased, while this pain does not develop with gastric or duodenal ulcer, colitis or kidney disease. The operation revealed the gallbladder 18 or 20 cm. long by 8 or 10 cm. wide, and a large gallstone was found in the cystic duct. There was no obstruction to the flow of bile, the disturbances being solely from the reaction of the gallbladder. All the symptoms were cured by the cholecystectomy.

Rapid Stain for Elastic Fibers in the Sputum.—Dargallo first sensitizes with hot 1:3 nitric acid solution, and then stains for ten minutes with a mixture of 3 parts fuchsin; 2 parts ordinary alcohol, and 1 part of a saturated aqueous solution of ferric chlorid.

Semana Médica, Buenos Aires

Aug. 12, 1920, 27, No. 33

- *Hemoptysis in Pneumonia. C. Patiño Mayer.—p. 197.
- Tests for Arsenicals and Procain. J. A. Sánchez.—p. 202.
- Lethargic Encephalitis; Two Cases. C. Lanza.—p. 204.
- *Splenectomy for Rupture. N. López Cross and A. J. Pavlovsky.—p. 208.
- *Physiopathology of Chlorids in Pneumonia. G. Segura.—p. 211.
- Lectures in Genito-Urinary Course. E. Castaño.—p. 214.
- Plasmogenesis. A. L. Herrera.—p. 225.

Hemoptysis of Nontuberculous Origin.—Patiño Mayer reports two cases of severe hemoptysis in pseudolobar bronchopneumonia in adults.

Rupture of the Spleen.—This article gives the findings in the blood in a case of traumatic rupture of the spleen in a man of 35. The variations in the blood formula show that the bone marrow was able finally to substitute the spleen after the removal of the latter.

The Chlorids in Pneumonia.—Segura warns that in pneumonia there is retention of chlorids, and hence saline infusion is contraindicated. He theorizes that the fever is one means for aiding in destroying different toxins, and expectoration is a means of expelling waste. The kidneys are evidently more or less injured by the toxins produced in the course of the pneumococcus process.

Siglo Médico, Madrid

Nov. 6, 1920, 67, No. 3491

- *Adhesive Pericarditis. M. Gil-Casares.—p. 837.
Present Status of Vacuum Extraction of Cataract. E. Llamas.—p. 843.

Adhesive Pericarditis.—Gil-Casares remarks that the initial acute phase may escape detection or be overshadowed by the usually coexistent pleuritis. Most of the patients are young, and the general aspect may be like that of the tuberculous, but the chest protrudes, continuing the outline of the rather prominent abdomen. There is a tendency to cyanosis in hands and feet, but no cough or expectoration. The temperature is unstable, mostly normal, with a brief rise occasionally. The patients feel fairly well in bed, but tire easily and are inclined to dyspnea when up and about, and the ankles swell. The veins in the neck fill during systole and empty themselves suddenly during the ventricular diastole. The dirotic arterial pulse coincides with the double wave of the venous pulse, as he explains.

Arbeiten a. d. Anat. Institut. d. Univ. Sendai, Japan

Nov. 18, 1920, No. 5

- *Embryology of Spleen in Birds. J. Shikunami.—p. 1.
Comparative Anatomy of Shoulder Girdle Muscles. S. Nishi.—p. 27.
*Comparative Anatomy of the Brain-Stem. I-VII. G. Fuse.—p. 49.

Embryology of the Spleen in Birds.—Eight colored photomicrograms accompany this report of research on different kinds of birds and fowls.

Comparative Anatomy of the Brain-Stem.—Fuse's research was done under a grant from the tercentennial Tokugawa jubilee fund. His numerous illustrations portray mostly the relations between the auditory nucleus, the eighth nerve, etc., and the cortex of the cerebellum in mammals.

Deutsche medizinische Wochenschrift, Berlin

Oct. 21, 1920, 46, No. 43

- *Etiology of "Colds" and Influenza. P. Schmidt.—p. 1181.
*Eye Disease Associated with Influenza. E. Fraenkel.—p. 1182.
Serodiagnosis in Influenza and Epidemic Encephalitis. R. Bieling and R. Weichbrodt.—p. 1183.
*Tests with Diphtheria Toxin-Antitoxin Mixture. W. Bieber.—p. 1184.
Immunization Tests with Foreign Antigens Against Tuberculosis in Guinea-Pigs. W. Böhme.—p. 1187.
Heart Flutter. S. de Boer.—p. 1187.
Tonometry with Oscillomanometer. S. Peller.—p. 1189.
Curability of Heart Valve Defects. G. Friedländer.—p. 1191.
*The Blood Picture and Vegetative Nervous System. P. Schenk.—p. 1192.
Dosage of Arsphenamin. W. Weigelt.—p. 1193.
Congenital Atresia of the Ileum. H. Landau.—p. 1195.
*Foot-and-Mouth Disease in Man. H. Sieben.—p. 1195.
Estimation of Percentage of Disability. E. Spir.—p. 1196.
*Present Status of Diabetes Therapy. P. F. Richter.—p. 1197.
Urinalysis. L. Casper.—p. 1200.

Etiology of "Colds" and Influenza.—Schmidt reports that of 196 inoculations with Berkefeld filtrates of secretions from patients with "colds" (16 different subjects) 25 took effect, 3 cases of influenza being among the results. Of 85 inoculations with filtrates from 12 influenza patients, 9 took effect, there being 5 cases of influenza and 4 of "colds." Following 43 control inoculations with physiologic sodium chlorid solution, 8 cases of "colds" developed but no case of influenza. Schmidt says that his investigations do not support the assumption of a filtrable causative agent in "colds" and in influenza, at least not present in large quantities. He thinks that further inoculation experiments on human beings with filtrates of secretions of coryza and influenza patients are imperatively needed to clear up the question in regard to the nature of the causative agents in these conditions.

Eye Disease Associated with Influenza.—Of 132 cases of influenza Fraenkel found eye involvement in forty-six, which he thinks is a larger percentage than is found in any other acute infection, in the latitude of Germany. Both eyes were not always involved. Hemorrhagic conditions were the most common finding. Hemorrhage of the retina gradually abated and finally disappeared. Microscopic examination of hemorrhagic foci in the retina revealed that the hemorrhage was not accompanied by inflammatory processes. There was no evidence that the changes in the retina were due to invading bacteria.

Immunization Tests with Behring's Diphtheria Toxin-Antitoxin Mixture.—Bieber analyzes the report of Hahn and

Sommer on the results of immunization tests performed on 1,097 children in the fall of 1913 in six small towns. Inoculation was done intracutaneously by the Römer method, between the scapulae. On the basis of the reactions it could be said that 633 of the 1,097 children were fully immunized, 255 were "doubtfully immunized" and 209 were "insufficiently inoculated." During the six years that have elapsed since the tests, approximately 15 per cent. of the nonimmunized children and only 4.6 per cent. of the immunized (only 3.3 per cent. of the fully immunized) have come down with diphtheria. In the town of Egelu (5,300 inhabitants) there was an epidemic of diphtheria during said six-year period. Of 304 children who were fully immunized in the fall of 1913, 4.2 per cent. contracted the disease, as compared with 18 per cent. of 1,089 nonimmunized children. Of the nonimmunized, 0.7 per cent. died, against 0.2 per cent. of the immunized. In Bismarck (3,000 inhabitants), which also had an epidemic of diphtheria, not one of the fully immunized children acquired the disease, while 6.7 per cent. of the nonimmunized developed it. From these figures it is evident that inoculation does not furnish absolute protection, though the morbidity and mortality rate may be very materially reduced.

The Blood Picture in Disturbances of the Vegetative Nervous System.—On the basis of a series of personally conducted investigations, Schenk states that in individuals with disturbance of the vegetative nervous system and predominance of the autonomic system we often find a high lymphocyte count and often a slight eosinophilia, whereas no characteristic blood picture is associated with hypertonia of the sympathetic system. Increase of tonus in the autonomic system by subcutaneous pilocarpin injections often produces a slight transient lymphocytosis, but without any accompanying increase of eosinophils. However, the experimental augmentation of tonus in the sympathetic system by injections of epinephrin produces marked changes in the composition of the blood in man. During the course of the first half hour following the injection, the absolute number of white corpuscles in the peripheral circulation increases in consequence of the marked increase of lymphocytes to more than twice the number, dropping then to normal during the next few hours, while the relative and absolute number of neutrophil polymorphonuclears increases and the lymphocytes disappear. The eosinophil cells show no considerable changes in the count over and above the physiologic fluctuation. The hypoeosinophilia and aneosinophilia noted in animals by some writers is always conspicuously absent in man. Neither pilocarpin nor epinephrin, nor the increased formation of hormones which these drugs produce through the mediation of the vegetative nervous system, has an unequivocal effect on the number of the eosinophil cells in the peripheral circulation.

Local Infections in Man Associated with Foot-and-Mouth Disease in Animals.—Sieben, finding that the descriptions of infections in man, associated with foot-and-mouth disease in animals, such as he found in the textbooks were quite different from the symptoms he has discovered in several cases, describes some of his cases. A woman of 38, who had been milking a goat that had sores on the udder from foot-and-mouth disease, presented a painful eruption on the hands. In the palms and on the volar surface of the fingers there were numerous nodular and very painful infiltrations, ranging from the size of a pea to half of a cherry. The smaller nodules were more recent and were a pale red and less painful than the older lesions, while many had at their summit a flat, white vesicle. The largest nodules were a bluish-black; the vesicles contained very little fluid. The patient complained of fever, headache and general discomfort. The mucous membranes were not involved in the slightest, and there was no similar eruptive process on any part of the body, except that one big toe presented a red, painful infiltration the size of a pea, also capped with a white blister. It was without doubt a specific disease entity. Improvement followed the use of antiseptic dressings. The eruption continued for about ten days. In all three cases it was peculiar that no aphthae formed on the mucous membranes.

The Present Status of Diabetes Therapy.—Richter refers to the experience, during the war, that diabetics frequently

improved on a restricted diet, and warns against the danger of drawing too wide conclusions from this fact. The experience of the war proved that an overabundant diet makes the situation worse as regards metabolism and the utilization of sugar, but it did not prove that any considerable reduction from a normal diet necessarily improves matters. The use, for any length of time, of a diet that is deficient in its caloric value is as dangerous for the diabetic as for any one else. Before the war, dietaries containing from 50 to 60 calories per kilogram were not uncommon. Others, more particularly Kolisch, advocated not more than 20 calories per kilogram. Richter is in agreement with von Noorden, who recommends 35 calories per kilogram of body weight, which is much less than is usually given diabetics today. Forced feeding of the patient, in order to bring up his weight as soon as possible, is not in the best interests of the patient and does not increase his capacity. Reduction of the diet below normal may be indicated for a short time in severe cases but is not to be recommended as a permanent diet.

Münchener medizinische Wochenschrift, Munich

Oct. 22, 1920, 67, No. 43

- *Milk Injections in Retinitis. L. Heine.—p. 1221.
- *Cane Sugar and Focal Reactions. H. Hasenbein.—p. 1222.
- Arsphenamin Accidents. R. Hahn.—p. 1222.
- *Aplastic Anemia Following Arsphenamin. H. Gorke.—p. 1226.
- Speed of Sedimentation of Blood Corpuscles. Schemensky.—p. 1228.
- Action of Cytophilins in Human Serum. Mandelbaum.—p. 1229.
- Meinicke and Sachs-Georgi Flocculation Tests. Pesch.—p. 1232; Sachs-Georgi Test. R. Somogyi.—p. 1233.
- *Auscultation Over the Clavicle. W. Hildebrandt.—p. 1234.
- Peculiar Case of Congenital Syphilis in Infancy. A. Mendelssohn.—p. 1234.
- *War in Relation to Mental Disease. Kraepelin.—p. 1235.
- *Rigidity of the Posterior Abdominal Walls. R. Drachter.—p. 1235.
- "Etiology of Febrile Herpes." Kraupa.—p. 1236; Löwenstein.—p. 1236.

Subcutaneous Injections of Milk in Retinitis.—Heine reports the results of his experiments with subcutaneous injections of milk in albuminuric retinitis. The dosage was from 5 to 10 c.c. If we regard the checking of the deterioration of vision as due in all cases to the milk injections, then out of 17 eyes, 15 were favorably affected thereby. If we consider only such cases as being favorably affected in which there was a marked improvement of vision, the favorable results numbered 11, whereas in 4 the disease process was only stayed. In only 2 did the disease process continue in spite of the injections. Also a series of cases of infectious retinitis and choroiditis was treated with milk injections. The primary results were often excellent, though recurrences were common. As the retina is embryonically closely related to the brain, it was thought that milk injections might affect favorably the cerebral symptoms of kidney patients, and that proved in several instances to be the case, though it must be admitted that sensitive patients complained of severe local pain and general disturbances, following the injections.

Intramuscular Injections of Cane Sugar to Produce Focal Reactions.—Hasenbein reports that by means of intramuscular injections of cane sugar focal reactions may be produced similar to those secured by parenteral injections of milk, etc. Good therapeutic effects have been obtained with injections of cane sugar in the treatment of gonorrhoea, more especially gonorrhoea of the cervix uteri.

Aplastic Anemia Following Arsphenamin.—Gorke reports two cases of aplastic anemia in women, in which the clinical manifestations and the blood picture seemed to be the direct result of arsphenamin treatment. One case ended fatally and the other in recovery. The disease is very rare and occurs only in persons who are very susceptible to arsphenamin. Only the immediate withdrawal of arsphenamin will check its progress.

Auscultation Over the Clavicle.—Hildebrandt points out a source of error in auscultation of the lungs. If the stethoscope is placed on the shoulder end of the clavicle, very frequently loud, roughened breathing will be heard, even though the lungs are perfectly sound. If the stethoscope is not in contact with the skin all the way around, a false "bronchial breathing" results, in much the same manner as the "sound of the sea" that children are sometimes told they can hear in sea shells.

War in Relation to Mental Diseases.—Kraepelin reports that the number of cases of mental disease due mainly to alcoholism has been very materially reduced since the war. He says further that the American people, after a long and hard struggle extending over many years, has succeeded in freeing itself from the bondage of alcoholism and that Finland has followed in its footsteps, and then he raises the question whether his own people, once it recognizes what is at stake, will not have the fortitude to hold fast to the new conditions, the wholesome effect of which must be apparent to every one, though his vision be never so dim.

Rigidity of Posterior Abdominal Walls in Inflammatory Processes of the Peritoneum.—Drachter recalls Krecke's explanation as to why rigidity of the abdominal walls is sometimes lacking in destructive cases of appendicitis; namely, that the appendix in such cases lies close to the posterior abdominal wall, behind the cecum or behind a loop of the small intestine. In this connection Drachter states that rigidity of the abdominal walls is usually not lacking even though the appendix does lie next to the posterior abdominal wall behind the cecum, but that in such cases it is not rigidity of the anterior walls but of the posterior walls that is found. He emphasizes that the condition of the posterior wall is often neglected in the diagnosis, whereas it is of the greatest importance. The posterior walls are involved particularly in cases in which the appendix and the inflammatory process spreading from it lie nearer to the posterior than to the anterior abdominal wall.

Wiener klinische Wochenschrift, Berlin

Oct. 14, 1920, 33, No. 42

- *Rupture of the Spleen in Malaria. C. Massari.—p. 917.
- Syphilitic Polyneuritis. W. Kerl.—p. 921.
- *Emaciation Preceding Arteriosclerosis. Királyfi.—p. 923.
- *Case of Cysticercus Subretinalis. A. Pillat.—p. 925.
- Normal Separation of the Placenta. V. Hiess.—p. 927.
- "Microscopic Observations on the Capillaries." H. Schur.—p. 928.

Rupture of the Spleen.—Massari says that owing to the fact that, since the war, there are so many men with abnormal spleens as a result of malaria, we should suspect malaria in all cases of rupture of the spleen, the diagnosis of which is not clear, when associated with only slight trauma. It is important that all malaria patients, and their friends and relatives as well, be informed of the fact that the spleen is especially vulnerable following malaria. Also all first aid stations should have their attention called to the matter, so that no time may be lost in sending malaria patients at once for a surgical examination following even a slight trauma.

Emaciation Preceding Arteriosclerosis.—Királyfi discusses a type of emaciation that he has frequently found preceding arteriosclerosis or associated with the incipient stages of this disease. The patients belonged to the 45-55 age group. They presented no subjective symptoms and no other objective changes, aside from the incipient manifestations of arteriosclerosis. The prognosis, so far as the emaciation was concerned, was favorable, as it usually responded promptly to forced feeding.

A Case of Cysticercus Subretinalis.—In Pillat's case the patient had become affected in February, 1919, with trichinosis from eating raw ham. The temperature rose to 40 C. every day. Along with nausea, vomiting and diarrhea, there appeared a marked swelling of the eyelids, which for a period of ten days were the only objective symptoms, at the end of which time they receded. The patient took no other drugs besides aspirin. In February, 1920, during an attack of influenza, the patient suddenly became aware of cloudy vision in the right eye. The physician consulted diagnosed a subretinal cysticercus. The diagnosis was confirmed in Warsaw and by Dimmer in Vienna, at which time vision had been reduced to counting fingers at a distance of 1 meter. June 12, under general anesthesia, Dimmer removed the invader in the usual manner, making a vertical incision in the conjunctiva 0.5 cm. from the outer edge of the limbus, with temporary resection of the external rectus muscle. The parasite was diagnosed as the larva of *Taenia solium*. When placed in a formaldehyd solution it squirmed violently; then remained motionless. At last accounts, vision had improved but was far from normal.

Zeitschrift für Geburtshilfe und Gynäk., Stuttgart

June 22, 1920, 82, No. 3

- Collargol in Puerperal Fever. P. W. Siegel.—p. 491.
 *Experiences with Contracted Pelvis. P. Gagel.—p. 527.
 *Vasomotor Disturbances at the Menopause. B. Zondek.—p. 559.
 *Bacteria in Normal Puerperal Uterus. A. Loeser.—p. 577.
 *Intake of Fluid in First Two Weeks of Life. F. Kirstein.—p. 650.

Experiences with Contracted Pelves.—Gagel reviews thirteen years' experience at the Jena clinic with 1,556 cases of narrow pelvis. The mortality of the children was 10.9 per cent. She tabulates the operative deliveries, a total of 25.3 per cent., with maternal mortality of 2.5 per cent. and fetal, 31.4 per cent.

Vasomotor Disturbances at the Menopause.—Zondek's tests confirmed the instability of the vascular innervation at the menopause. The vasomotor center is in a chronically irritated condition, which he ascribes to the internal secretion of the modified ovaries. This is responsible for hot flashes and the disturbances in the respiration rate which accompany them, as also the pathologic changes in the distribution of the blood. He explains this by active contraction of the vessels innervated by the splanchnic nerves under the influence of the vasomotor center. This contraction forces large amounts of blood into the peripheral vessels. As suddenly as it occurs, it is ended by stimulus directed elsewhere. Then follows active vasodilation of the abdominal vessels, which aspirates the blood into them, and this is aided by contraction of the peripheral vessels. It is easy to understand that these paroxysmal shiftings of the blood are liable to induce symptoms, palpitations, sweating and a feeling of distress. In the course of his extensive research he noted that mental work, counting, picking out certain letters, etc., influenced the vasomotor center in an unphysiologic way, but this did not occur with physical work. The vasomotor center at the menopause responds abnormally to heat and cold at times.

Bacteriology of the Normal Puerperal Uterus.—Loeser's exhaustive research on this subject has demonstrated that every puerperal uterus contains the micro-organisms of febrile puerperal infection by the fifth day without fail, and in 75 per cent. of the cases this occurs at the third day. He gives forty-eight pages of tables showing the exact conditions in his 1,344 culture tests with plates, agar-tubes or bouillon, not counting the further work required for pure cultures and differentiation of the different strains. The attraction of the raw site of the placenta for the bacteria is one of the factors inducing their upward migration. By the first day after delivery, bacteria were cultivated from the internal os. The anaerobes seemed to climb faster than the others, and serve as a guide. Long labor seems to induce enrichment of the bacterial flora, but the interval between the rupture of the membranes and delivery and the length of the third stage of labor did not seem to affect the bacterial flora. The gonococcus and the anaerobes grow better in the uterus than in the vagina. He took smears repeatedly from different levels in the vagina, cervix and uterus, and examined fifty-six par-turients in this way; 56 per cent. of them had not been given internal examination before or during the birth, while four had been repeatedly examined internally.

Amount of Fluid Intake in First Two Weeks.—Kirstein had 820 infants weighed before and after breast nursing, and gives tracings of the resulting weight curves.

Zentralblatt für Gynäkologie, Leipzig

Oct. 23, 1920, 44, No. 43

- Arrest of Hemorrhage in Placenta Praevia. P. Mathes.—p. 1210.
 Threatened Rupture of Uterus in Premature Childbirth. A. Werner.—p. 1216.
 Encephalitis in Relation to Pregnancy. P. Kreiss.—p. 1220.
 *Syphilis in Relation to Pregnancy. R. Hornung.—p. 1222.

Effect of Syphilis on Pregnancy.—Hornung gives statistics from the University Woman's Hospital in Kiel bearing on the effect of syphilis on pregnancy. During the four-year period, 1910 to April 1, 1914, 221 pregnant women were observed who were infected with syphilis in some form or other. There were three twin pregnancies, the outcome of which is of special interest. In one of these, presenting a positive Wassermann reaction but no clinical signs of syphilis, delivery

occurred at the end of the sixth month. The first child was stillborn; the second child died the day it was born. The living child gave a negative Wassermann reaction; no serum could be obtained from the stillborn child. Neither child presented any syphilitic changes. In the second case, the mother gave a positive Wassermann reaction, but no clinical evidence of syphilis. About the middle of the seventh month a living child was first born, followed by a macerated stillborn child. The live child is thriving but has twice caused partial inhibition of hemolysis. In the third case of twin pregnancy the mother presented florid syphilis in the second stage and a positive Wassermann reaction. At approximately normal term two living children were born, both of which gave positive serum reactions but no clinical evidence of syphilis. It is thus evident that the results of syphilitic infection are not necessarily the same for both fetuses. No cases were observed in which both twins were stillborn. In the whole series, birth of a living child occurred in 186 cases, or 85.33 per cent.; there were twenty-four (13 per cent.) premature births, seven of which were however determined by other causes than syphilis. There were thirty (13.76 per cent.) stillbirths, all after the fourth month. Of the 124 children of the mothers who gave positive Wassermann reactions but no clinical evidence of syphilis, three presented clinical signs of syphilis—*pemphigus specificus*, in each case—but gave a negative Wassermann reaction. Of the 73 children given the Wassermann test, 13 reacted positively.

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- Relation of Influenza to Pulmonary Tuberculosis and Scrofulosis. F. Jessen.—p. 721.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

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- The Medical Journal and the Practitioner. G. Van Rijnberk.—p. 2623.
 *Syphilis and Kidney Disease. J. Lankhout.—p. 2649.
 Treatment of Ozena. J. De Levie.—p. 2656.
 *Caries of Upper Vertebrae. H. Rümke.—p. 2658.
 The Midwife in Child Welfare Work. H. Aldershoff.—p. 2696.
 Technic for Medical Inspection of Schools. J. Lubsen.—p. 2702.

Syphilis and Kidney Disease.—Lankhout describes two cases of nephritis in syphilitic men of 26. The acute nephritis developed insidiously in the course of hospital arsenamin treatment, and the albumin content of the urine ran up to 2 per cent. but there was very little hemorrhagic tendency. The kidney functioning did not seem much disturbed, notwithstanding the rebellious edema. The blood pressure was normal. The headache and apathy in such cases are liable to be mistaken for uremia. After six or eight weeks of treatment the edema had almost completely subsided, and the albumin dropped to 1 or 2 per thousand, so the patients were allowed to get up and gradually return to active life. The syphilis was of one or two years' standing in these cases, and systematic mercurial treatment had been given. The toxins from the syphilis virus are probably responsible for the kidney disease, which is more of a nephrosis than a nephritis. The specific treatment did not seem to benefit the kidney disease in his cases; possibly the mercury had rendered the kidneys more susceptible. Neither man had any signs of syphilis at the time, and both have regained full strength and earning capacity. Recent reexamination of one of the patients showed no albumin in the urine. The urea range was from 0.85 to 2 per cent. and specific gravity, 1.009 to 1.025, but the total output of urine was low, only 794 c.c. in twelve hours.

Caries of Upper Vertebrae.—In Rümke's case the woman of 49 had suffered recently from supposed occipital neuralgia, and had begun to snore at night and have some difficulty in swallowing. Roentgenoscopy was negative, but stiffness of the neck finally gave the clue, confirmed by the course of the case, which revealed a tuberculous process in the upper vertebrae. As the findings with roentgenoscopy had been negative at first, the occipital neuralgia was assumed to be of rheumatic origin, and the occipital nerve was stretched. The woman stopped breathing as this was done, but recovered under artificial respiration. Only transient benefit followed. The woman died about a week after the suboccipital spondylitis was finally recognized and an extension cast applied.